UNITED
NATIONS

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Economic and Social Council

Distr.
LIMITED

E/CONF.91/L.10
7 November 1997

ENGLISH ONLY

SEVENTH UNITED NATIONS CONFERENCE
ON THE STANDARDIZATION OF
GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 10 (a) of the provisional agenda*

EXONYMS: CATEGORIES AND DEGREE OF USE OF EXONYMS

Donor-recommended exonyms for historical topographic features in Israel

Paper submitted by Israel**

* E/CONF.91/1.

** Prepared by N. Kadmon, Emeritus Professor of Cartography, Department of Geography, The Hebrew University of Jerusalem.

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After more than 30 years of toponymic activity on the part of the United Nations, it is clear that the use of exonyms cannot be completely eliminated. During all these years the United Nations Group of Experts on Geographical Names and the UN Conferences on the Standardization of Geographical Names have repeatedly stressed the importance of the use of standardized endonyms in international use, and at the same time have advocated the consequent reduction in the number of exonyms.

According to the latest United Nations definition [1], an exonym is "a name used in a specific language for a geographical feature situated outside the area where that language has official satus, and differing in its form from the name used in the official language or languages of the area where the geographical feature is situated. ..... The United Nations recommend minimizing the use of exonyms in international usage".

Many countries have published and brought to the attention of the United Nations lists of exonyms in their own particular languages, covering selected regions outside their political and toponymic jurisdiction, or even the entire world. The reasons for the retention of exonyms are of a historical nature on the one hand, and of a linguistic-phonological character on the other. Exonyms resulting from the latter set of conditions can perhaps not be eliminated, for quite objective reasons. But historical exonyms or traditional names can, at least in principle, be greatly reduced in number.

In a paper under the title "Donor-recommended exonyms: a different approach to traditional names" [2] presented by Israel to the Sixth United Nations Conference on the Standardization of Geographical Names in 1992 it was proposed that a specific country – to be termed in the present context the donor country – can request, or at least recommend, that all but a limited number of toponyms in its own territory be always referred to by their endonyms when used by the international community, i.e. by receiver countries. The resulting residue of a limited number of geographical names would then form the basis for a list of donor-recommended exonyms.

This principle is now being followed in Israel, and its application has two aspects, one external and one internal. The first, external, aspect is the one outlined above, namely agreeing to the use of a specified list of donor-recommended exonyms by foreign toponymic, cartographic, touristic and other institutions in their publications, though preferably together with the respective endonym, e.g. in parentheses or in a different font. Of course the exonyms will take different forms in different languages. The best known example is Jerusalem. The Hebrew endonym of Jerusalem is ירושלים, romanized Yerushalayim by the official romanization system. Different linguistic communities use different exonyms, mostly resulting from different translations of the Bible: Jerusalem (English, German), Jérusalem (French), Jerusalen (Spanish), Gerusalemme (Italian), Jeruzalem (Dutch, Afrikaans), Urshalīm (Arabic, Persian), Hiruharama (Māori), Ιερουσαλήμ (Greek) and others. All these forms can be used in their respective languages. The same is true for other topographic features.

The second aspect is of an internal character. Romanized maps printed by Israeli cartographic institutions, including the *Survey of Israel*, national surveying and mapping authority (which in the past printed exonyms for only seven topographic features in its romanized topographic maps) will now carry the recommended

exonyms, too – mainly in their English conventional form. In official maps they will be printed after the respective endonyms. Roman-script road signs, however, which for reasons of legibility by car drivers are limited in the amount of text they carry, will provide only the English exonyms. This refers to the white, green and blue signboards maintained by the Public Works Department of the Ministry of National Infrastructure, and the orange-brown ones designed by the Government Tourism Authority.

This decision, reached by the Commission on Geographical Names Orthography, on which all principal public producers of maps and road signs are represented, was arrived at during (and in parallel with) discussions on possible changes in the romanization of Hebrew in official mapping and road signposting [3]. Both these principles are intended to simplify map use and road navigation by foreign tourists visiting Israel. For a list of the main participant bodies on this Commission see [4].

At the time of writing (September 1997) the list of donor-recommended exonyms for Israel, prescribed by the above Commission, is as follows.

English exonym	Hebrew endonym, romanized	Hebrew endonym
Akko (not Acre)	'Akko	עכו
Banias	Panyas	פניאס
Caesarea *	Ḥorbat Qesari	חרבת קיסרי
Cana	Kafr Kanna	כפר כנא
Capernaum	Kefar-Naḥum	כפר-נחום
Coral Beach	Ḥof Almog	חוף אלמוג
Dead Sea	Yam haMelaḥ	ים המלח
Haifa	Ḥefa	חיפה
Jerusalem	Yerushalayim	ירושלים
Jordan River	Nehar Yarden	נהר ירדן
Judean Desert	Midbar Yehuda	מדבר יהודה
Magdala *	Migdal	מגדל
Masada	Meẓada	מצדה
Mount of Beatitudes	Har haOsher	הר האושר
Mount Carmel	Har Karmel	הר כרמל
Mount Moriah	Har haMoriyya	הר המוריה
Mount of Olives	Har haZetim	הר הזיתים
Mount Scopus	Har haẒofim	הר הצופים
Mount Tabor	Har Tavor	הר תבור
Mount Zion	Har Ẓiyyon	הר ציון
Nazareth	Naẓerat	נצרת
Old Jaffa	Yafo	יפו
Samaria	Shomeron	שמרון
Sea of Galilee	Yam Kinneret	ים כנרת
Tabigha	'En Sheva'	עין שבע
Tiberias	Teverya	טבריה
Zefat (not Safed)	Ẓefat	צפת

*) Antiquity site only, not the town.

Transliteration of the endonyms in the above table, too, follows the romanization rules in force at the time of writing. As reported in [3], these rules are now under review.

All other toponyms in Israel should be printed in foreign maps in their endonymic form – transliterated or transcribed, as the case may be into the other languages or scripts, but not exonymized. Thus, Elat and not Eilat, Netanya and not Nathania, Ashdod and not Asdod, Be'er-Sheva' and not Beersheba, etc.

Notes

[1] United Nations Group of Experts on Geographical Names, Working Group on Toponymic Terminology, *Glossary of Toponymic Terminology*, ed. N. Kadmon, convenor. Version 4, term No. 81.

[2] "Donor-recommended exonyms: a different approach to traditional names". *Sixth United Nations Conference on the Standardization of Geographical Names*, New York, 1992, vol. II, Technical Papers, p. 365-366.

[3] "Theoretical and practical considerations for changes in the romanization of Hebrew". 18th Session of the United Nations Group of Experts on Geographical Names, Geneva, 1996, Working Paper No. 5.

[4] "National report of Israel for the period 1992-1997". Paper presented to the Seventh United Nations Conference on the Standardization of Geographical Names, New York, 13-22 January 1998.

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Distr.
LIMITED

E/CONF.91/L.11
7 November 1997

ENGLISH ONLY

SEVENTH UNITED NATIONS CONFERENCE
ON THE STANDARDIZATION OF
GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 12 (a) of the provisional agenda*

WRITING SYSTEMS AND GUIDES TO PRONUNCIATION: ROMANIZATION

Considerations for and against the revision of a romanization system - the case of Hebrew

Paper submitted by Israel**

* E/CONF.91/1.

** Prepared by N. Kadmon, Emeritus Professor of Cartography, Department of Geography, the Hebrew University of Jerusalem.

97-34146 (E) 041297 111297

In a paper presented to the 18th Session of the United Nations Group of Experts on Geographical Names by Israel [1], a number of considerations concerning a possible revision in the romanization rules for Hebrew were examined. The presentation drew some quite interesting (if not quite unanticipated) reactions from a number of attending Experts, which were followed up by a correspondence on the matter. The present paper is designed to highlight the main points of the problem.

While the case under review is a particular one concerning Israel, it may perhaps serve as a test case for others, especially for countries which still have to devise a romanization system.

The matter of changes in an accepted and established transliteration system cannot be approached lightly, a point which is undoubtedly clear to both proposers and opposers. And while any country is free to adopt its own particular system according to the donor principle, the toponymic authorities in Israel are attentive to any constructive criticism.

The following reflections can be classified under a number of headings. But here, first, is a brief historical review.

The present romanization system for Hebrew was devised in 1956 by the Academy of the Hebrew Language, the national body regulating the use of this language. It was adopted by the Knesset (the Israeli Parliament) and published in the Government Gazette in January 1957. It was then immediately adopted by the *Survey of Israel*, national surveying and mapping authority. In 1977 the undersigned, as delegate of Israel, presented it to the Third UN Conference on the Standardization of Geographical Names in Athens, and it was adopted as Resolution No. 13; see [2].

For the 40 years since its introduction this system has been applied by the *Survey of Israel* in its official maps. Very few map publishers in Israel or other bodies dealing with geographical names employed it in their products, for reasons explained below. The PWD (Public Works Department) used the official romanization system in its road signs, but consistently omitted the two main diacritic signs, using *h* for underscored *ḥ* and *z* for underscored *ẓ* (see below for a definition of the differences).

In the course of these years many complaints have been lodged agains this system, and these form the background to the present deliberations by the *Commission on Geographical Names Orthography*. The main member-institutions on this body are the *Survey of Israel*, the Public Works Department, the Government Tourism Corporation, the Nature Reserves Authority, the National Parks Authority and the Hebrew University of Jerusalem.

General Treatment

It should be clear to anybody dealing with the matter of conversion of geographical names, and with transliteration in general and romanization as a particular case, that there exists no ideal solution to the problem of transferring the sounds and their graphic representation from one language to another

– transcription – and from one writing system to another – transliteration (for definitions of the technical terms in this paper see *Glossary of Toponymic Terminology*, [3]). In the best case an optimal answer can be found. In the following we shall restrict ourselves to the case of transliteration from a non-Roman script to a Roman one, i.e. to romanization.

The very first question that any institution wishing to generate a formal and consistent system of names conversion must ask itself is the following: what is the purpose of the project? In other words: whom should the system serve, i.e. what is the expected "user population"? The next question will be: should the system convey to the user (the "receiver" or "target") the orthography of the source script, or its sounds and phonology? It is clear that both objectives cannot be combined in a single system.

The third question concerns reversibility: should the transliteration be reversible (rigorously or less so), i.e. is it required that from the transliterated form in the target script the reader can infer the original form in the source script?

It appears to the present writer that in few cases of transliteration systems – including those approved and adopted by the UN Group of Experts on Geographical Names and the Conferences on the Standardization of Geographical Names – the originators of the systems have indeed asked themselves these pertinent questions. And this is what the Israeli *Commission* has lately been doing. Existing transliteration systems give rise to the impression that they are more producer-oriented than – as they should be – user-oriented. In other words, the creators of these systems may have been qualified linguists, but they probably were not sufficiently in touch with the "real world" which they are supposed to serve. The romanization of Arabic can serve as an example of taking this matter into account: mainly because of the different ways of transliterating e.g. the letter ش (shīn) by the francophone and the anglophone populations, no single unified romanization system for Arabic has as yet been adopted by the relevant UN bodies [4]. Although the Group of Experts and the Conference recommended that "States should refrain from revising systems previously adopted for international use" [5], in some cases proposals for amendments in existing systems were brought before, and some of them indeed approved by, the UN bodies. Examples are Amharic [6], Arabic [7] and Devanagari [8].

Although the Hebrew system has been in use for 40 years, it is not a "holy cow" immune from criticism or revision. If really found necessary it should be amended. On the other hand, the popular expression "the best is the enemy of the good" must also be kept in mind.

Concerning the objections to change in a well-established and, in the words of some critics, a scientific system, these were heard in United Nations meetings in the past especially when China introduced its Pinyin system replacing Wade-Giles [9] and when the former USSR did the same with GOST 1983. The chief objectors were the United States and the United Kingdom for, among others, the very valid reason that these were, and are, the leading world atlas producers. Conversion from the old systems to the new required huge financial inputs for tens of thousands of changes in spelling. In the case of Hebrew the number of name changes would be only a fraction of those required for Chinese or Russian. Another reason offered was that the new systems of romanization, designed by the donor countries, were even less user-friendly than the old ones which were designed by "representatives" of the largest slice of the user population of the romanized targets. Conversely, the proposed changes in the romanization of Hebrew tend to make it more easily used by speakers of English – a feature stressed as desirable by the United Kingdom [10] which now objects to the change.

Attempting now to supply answers to the above questions in the specific case of Israel and Hebrew, we shall start with question No. 1. What is the user population of the romanization of Hebrew? On the one hand there are the producers of romanized maps (a) in Israel and (b) in other countries. However, these should not reside in "ivory towers" but cater to the needs of their readership. Some of these readers /...

may be interested, or even active, in some branch of science such as history, geography archaeology or toponymy. But they, like Antoine de St. Exupéry's geographer in *The Little Prince*, work mainly at their desks [11]. I shall come back to these when dealing with reversibility. But by far the largest proportion of the users of romanized Hebrew are the millions of tourists who visit Israel each year. These, or at least a very considerable part of them, use maps in order to find their way about the country. In order to be able to do this they have to ask about place names – and asking involves orally communicating with local residents (most of whom can speak English).

The answer to the first question is, therefore: romanized maps, at least those produced locally, must, in the first place, satisfy the needs of actual visitors to the country, chiefly tourists.

Question No. 2: orthography-oriented or phonetically-based? The answer to this question follows from the previous one. Romanized maps of the country should enable the foreign visitor to ask local residents about places they wish to visit or learn about. In order to make themselves intelligible to Israelis, they must be enabled to pronounce the respective names in a more or less "correct" way by reading them in the map. The spelling should, therefore, be as user-friendly as possible from the viewpoint of the foreigner, which means that it should convey to the reader the proper sounds with a minimum of "intellectual effort" on his part. This, again, means that the system should have a minimum of diacritic signs and deviations from letter values known to him or her. Where possible, Roman letters should be used for the sounds which they represent in the target language . In the case of the majority of tourists visiting Israel this is English. Adherence to the original spelling takes second place. This is accentuated by the fact that many names, if not most, are found in literature and non-official maps in unofficial and, to the reader, more intelligible forms.

Question No. 3: should there be reversibility, and if so how much of it? Again, the answer here stems from that to question No. 2. Reversibility is the possibility to deduce the original (here – Hebrew) spelling from the romanized form. But this means that the reader looking for reversibility in the system has at least some knowledge of the writing of the source language (Hebrew). This can be expected only of a small minority of users. And this minority – among them chiefly archaeologists, historians and linguists – will be using (or at least are able to use) unromanized maps in the original script if necessary. Reversibility is thus relegated to a lower status than user-friendliness in reproducing the sounds of the source language. The principle of reversibility which even in the "old" UN-sanctioned official system was achieved only partially should be adhered to only as long as it does not interfere with the facility of sound representation.

Question No. 4: this concerns the use of exonyms. In Israel, a further problem is involved, so the additional question will be: should certain exonyms be approved for "internal" use? In other words, should there be a list of donor-recommended exonyms? As country of the Bible, Israel has both retained and revived many place names found already in the Old and New Testaments. Some of these are well known throughout the Christian world, such as Jerusalem, Nazareth, Cana, Capernaum, Mount Carmel, Mount Tabor and others. These are used in Hebrew in their original form (romanized respectively as Yerushalayim, Nazerat, Kana, Kefar-Nahum, Har Karmel, Har Tavor), but they are recognized also as English exonyms in maps and road signs. See [12].

Particular Treatment

Having dealt with the subject in a more or less general way, the specific problematic letters and diacritics of the present romanization of Hebrew will be itemized. The details of the existing Hebrew romanization will not be repeated; they can be found in [2] and [13]; only certain specific problematic letters and diacritics will be mentioned below.

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When the Academy of the Hebrew Language decided on its romanization system, it tried to follow a "traditional" Hebrew pronunciation used chiefly by Eastern ("Sefardi") Israelis. This resulted in the two following consonant transliterations which (among others) are now under critical review.

Perhaps the main stumbling block was considered to be the letter ק, the guttural *k*, equivalent to the later Arabic ق. Following established British practice, this letter was romanized by the letter *q*. However, Western persons (including the numerous tourists visiting Israel, using official maps and following roadsigns) are not used to seeing the letter *q* unless followed by *u*. Thus, they do not recognize *q* as representing an allophone of the /k/ phoneme and pronounce e.g. Qirya as Quirya, Ashqelon as Ashquelon or Qorant as Quoranit. Besides, they usually cannot pronounce it correctly – and even most Israelis do not make the distinction between the two /k/ allophones, כ (transliterated by *k*) and the guttural ק (transliterated by *q*). Moreover, in Chinese Pinyin the *q* represents IPA /t ʃ/, the *ch* sound, so its phonemic use is not universal.

Transliterating consonantic ו by *w* has also been criticised. Practically only the minority of Israeli linguistic purists of Yemenite descent pronounce this as *w*, everybody else – as English *v*.

Another problematic romanization concerns the letter צ representing the /ts/ phoneme. This, in the old system, was transliterated by underscored z . Most speakers of English (and these constitute the majority of tourists in Israel) do not distinguish between this and plain z. The opposite is true of speakers of German, who correctly read this for /ts/, but who do not associate z with the voiced /z/. The substitution of *tz* has been suggested. but since /ts/ ends in the unvoiced fricative /s/, *ts* is at present being considered.

Diacritical signs which are used to distinguish between different phonemes expressed by a single grapheme (such as *z* and *ẓ* for /z/ and /ts/, respectively) have two main disadvantages. They are not self-explanatory so that they must be defined in a transliteration table (the same is, of course, true of the unconventional use of letters such as *q* for Chinese ch). And in not a few cases they are difficult to produce on typesetting equipment and word processors, or else, being small, they tend to be lost in the reproduction process, particularly in map printing. In all these cases they lose their meaning. Therefore, one of the aims of a good transliterating system should be to minimize the use of diacritics while still being self-explanatory to a majority of readers.

Romanization of Hebrew employed two such diacritics, namely *ẓ* for /ts/ as stated above, and *ḫ* for the guttural allophone of /χ/, roughly the *ch* sound in Scottish *loch* or German *ach*, to distinguish it from plain *h*. No proper substitute for *ḫ* has, as yet, been devised. But a person pronouncing it simply as *h* is not so far off the mark.

The mute stops א and (guttural) ע (to which correspond Arabic ا and ع) may now both be represented by ' instead of by ' and ‘ respectively in the past, because the Western reader does not distinguish between them. And it should only be inserted in positions where it actually and vocally divides between vowels. Incidently, and strictly speaking, the ' sign is not a diacritic, since it does not *modify* a letter; it is a grapheme which *represents* a letter.

Digraphs, too, are somewhat problematical – as are the diacritical marks which can, and in certain cases do, substitute for them. While *sh* for Hebrew ש, representing the / ʃ / sound, is at least "natural" for speakers of English, *kh* for the Hebrew undotted כ (the IPA /χ/ sound) is not – in any language. The digraph *ch* is being considered; this is understandable to speakers of German and used also in English Bibles (Taanach, Malachi, Machtesh, Michmas, Abimelech and many more). But because of confusion of *ch* by English speakers with the /t ʃ / sound, even in medial and final positions (unpointd כ cannot occur initially), the English convention of *kh* was adopted in the past, both in Hebrew and in Arabic (for خ). Since "Sassenachs" (Saxons, or simply southern Englishmen to Scots) cannot usually

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properly pronounce the *ch* in Scottish *loch* and say *lock*, the *kh* convention invented by English linguists is understandable.

A further problem is the doubling of consonants carrying a *dagesh ḥazaq* (similar to Arabic *shaddah*). This is critical in the case of the digraph *sh* and would look incongruous in transliterating e.g. the toponym *Mashshash*. Since the doubling is anyway not very marked in speech, it might in the future be abolished in the transliteration of other consonants too.

Stability of the System

Finally, the important aspect of stability of the existing system must be considered. This is indeed an issue of importance, and speaks against any change in a well-established system. The changes are expressed not only in financial terms but in temporal ones, too: a number of years will be required until the new system will be "absorbed", not so much by map users for whom the new system will be easier to use than the old but by map producers. However, when one weighs the advantages to the users as agains the disadvantages to the producer (and the greatest burden will fall upon those in Israel itself) in view of the factors described above, it seems that the former predominate.

At the time of writing, no final decisions have been made concerning possible changes. But countries intending to develop a romnization system for approval by the United Nations might benefit from taking into account the above considerations.

Notes

[1] "Theoretical and practical considerations for changes in the romanization of Hebrew". United Nations Group of Experts on Geographical Names, 18th Session, Geneva, 1996, Working Paper No. 5.

[2] "Romanization of the Hebrew alphabet". Third UN Conference on the Standardization of Geographical Names, Athens, 1977. Vol. I, Report of the Conference, Resolution No. 13, pp. 29-33.

[3] UN Group of Experts on Geographical Names, Working Group on Terminology, *Glossary of Toponymic Terminology*, Version 4, ed. N. Kadmon, convenor.

[4] *Resolutions adopted at the Six UN Conferences on the Standardization of Geographical Names, 1967, 1972, 1977,1982, 1987, 1992*. Prepared for the United Nations by the Canadian Permanent Committee on Gepographical Names. See First Conference, 1967, Resolution No. 13; Second Conference, 1972, Resolution No. 8; Third Conference, 1977, Resolution No. 9 ("....to arrive at a solution").

[5] ibid., Fourth Conference, 1982, Resolution No. 15.

[6] ibid., Second Conference, 1972, Resolution No. 7.

[7] ibid., Third Conference, 1977, Resolution No. 9.

[8] ibid., Third Conference, 1977, Resolution No. 12.

[9] "Statement by the United States of America and the United Kingdom of Great Britain and Northern Ireland" concerning the romanization of Chinese". Third UN Conference on the Standardization of Geographical Names, Athens, 1977, Vol. II, Technical Papers, pp. 401-402.

[10] "The status of the English language". Fourth UN Conference on the Standardization of Geographical Names, Geneva, 1982, Vol. II, Technical Papers, pp. 362-363.

[11] Antoine de Saint Exupéry, *Le Petit Prince*, Ch. XV.

[12] "Donor-recommended exonyms for topographic features in Israel". Paper submitted to the Seventh U.N. Conference on the Standardization of Geographical Names, New York, January 1998.

[13] N. Kadmon (1994), *Toponomasticon – Geographical Gazetteer of Israel*. Survey of Israel and "Carta", Jerusalem.

UNITED
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Economic and Social Council

Distr.
LIMITED

E/CONF.91/L.12
7 November 1997

ENGLISH ONLY

SEVENTH UNITED NATIONS CONFERENCE ON THE
STANDARDIZATION OF GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 12 of the provisional agenda*

WRITING SYSTEMS AND GUIDES TO PRONUNCIATION

Plene vs. vocalized orthography of names in Hebrew GIS-derived digital topographic maps

Paper submitted by Israel**

* E/CONF.91/1.

** Prepared by N. Kadmon, Emeritus Professor of Cartography, Department of Geography, The Hebrew University of Jerusalem.

97-34728 (E) 151297 191297

Hebrew writing belongs to the defective (i.e. mainly unvowelled) alphabetic scripts [1], a sub-division of the alphabetic writing system. It is often classified as a consonantic script, but this is not quite correct since vowels are represented not only by vowel points (or markers) in the form of small points and bars below, within or above the (consonant) letters, but also by certain "dual-purpose" letters which can also serve as consonants. Thus, the letter ו (vav) is pronounced consonantic *v*, but with vowel points added וֹ is *o* and וּ is *u*. Another example is the letter א (alef): in word-or-syllable-initial position it is used to precede a vowel (like Arabic ا or Korean ㅇ) and in itself is mute; but after an *a* sound it serves to lengthen or stress the preceding vowel.

Originally, Hebrew was written (at least since the 9th century BC) completely without vowel points, and all Torah scrolls (the Pentateuch or Five Books of Moses) in synagogues are still (handwritten!) thus. In the 8th-9th century AD, when the oral tradition of learning to read without vowel points was becoming lost as a result of the greatly diminishing use of Hebrew as a daily language, vocalization with the aid of vowel points was introduced, and this has been in use since then. Since the revival of Hebrew as a daily language in Israel by E. Ben-Yehuda in the early 20th century, reading of unvowelled text has again become normal and general, Only sacred books (all *printed* versions of the Bible, the Mishnah and the Talmud) as well as junior school books and other books for small children and learners of Hebrew are printed with full vocalization.

Hebrew vowel points, although making reading unambiguous, have two drawbacks. In small print, especially on a coloured background, they tend to be hardly visible. This is the case with maps, with which we are concerned here. And secondly, again in the smaller fonts, these dots and small bars often get lost in the photolithographic reproduction process employed in map work.

The question remains – why was full vocalization retained in maps, whereas in books and newspapers it has been all but deleted? The answer is that while unvocalized Hebrew words can easily be read, pronounced and understood by speakers of the language – names, and in particular foreign words and names, often can not. As an example, unvowelled the name חסן can be read as either Ḥosen or Ḥusan (villages of both names exist). And as an example of a foreign name: לנדן can be read as London, Landan, Lenden etc. Adding the vowel points חֹסֶן and לַנְדַן makes both names unequivocal.

But as mentioned above, vowel points tend to be lost, especially in mapping. There is then a third possibility: plene orthography.

Yiddish, Judaeo-German, a language which developed in the Middle Ages among the Jews of Central and Eastern Europe (and which today is still spoken by a small sector of the population of Israel) is written in Hebrew characters. But since many of its words came from non-Hebrew, chiefly German, roots, and are therefore not immediately recognizeable by readers of the Hebrew script, some letters (א, ע, ו, י) were substituted for vowels. In the Hebrew of the 1930s and onwards the same principle was introduces, though to a lesser degree and at first without any set rules. But in the last decades the problem and its solutions were institutionalized by the *Academy of the Hebrew Language*, the legally constituted body which regulates the national language. And thus were devised the rules for plene unvocalized orthography (*ketív malé*, – "plene" i.e. full spelling, because it uses more letters – as against the vocalized *ketív ḥaser*, deficient spelling). These introduce at certain defined positions in words which otherwise would have different readings, standard consonantic letters , א for a, ו for *o* and in certain cases *u*, and י for *i*. These (together with the letter ה, *h*), are then called *matres lectionis*. The pertinent rules have been published by the *Academy* [2].

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When the *Survey of Israel*, national surveying and mapping authority, started its new GIS-based computer-drawn digital maps, the above considerations were taken into account. Moreover, it was found that vocalization points were difficult to incorporate in the automated system. It was, therefore, decided to change over from the vocalized representation of geographical names to unvocalized plene orthography. This is how names are now found in the new topographic series at a scale of 1:25,000, which is the first to be based on a direct analytical photogrammetry-to-GIS-to maps system.

However, this solution is not an entirely satisfactory one. While it has solved the great majority of cases of ambiguous forms, there remains a proportion of names where additional vocalization is required: less than 1 percent in Israeli names, but many more in maps of foreign countries as, for example, in world atlas work. The example of Ḥosen and Ḥusan cited above is typical. Even in plene orthography both are spelled חוסן. The addition of a single dot makes part of the difference: Ḥosen is חוֹסן, while Ḥusan is חוּסן. The complete differentiation would require in each name another vowel marker: חוֹסֶן for the former and חוּסָן for the latter. Because the first is a standard lexical Hebrew word while the second is not, it suffices if the vowels are added in the second name only. In the present GIS of the *Survey of Israel* it proved difficult to incorporate the vowel points, and therefore they are being added manually in the less than 1% of cases (as against the 100% vowelling in analog maps). It is hoped that a new vocalizing system under investigation will facilitate the computerized addition of the necessary vowel points.

Finally, it should be noted that the introduction of plene orthography in no way alters the pronunciation of Hebrew names, and transliteration is hardly affected.

Notes

[1] For this and some other technical terms used in the present paper, see: UNGEGN Working Group on Toponymic Terminology, *Glossary of Toponymic Terminology*, versions 2 and 4, edited by N. Kadmon, convenor.

[2] "Rules for unvowelled script". *Leshonenu La'am*, Quarterly of the Academy of the Hebrew Language, special issue, Jerusalem, July 1994, pp. 31-43 (in Hebrew).

UNITED
NATIONS

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Economic and Social Council

Distr.
LIMITED

E/CONF.91/L.13
10 November 1997

ENGLISH ONLY

SEVENTH UNITED NATIONS CONFERENCE
ON THE STANDARDIZATION OF
GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 7 of the provisional agenda*

TERMINOLOGY IN THE STANDARDIZATION OF GEOGRAPHICAL NAMES

Glossary of Toponymic Terminology - Version 4

Paper submitted by the United Nations Group of
Experts on Geographical Names, Working Group
on Toponymic Terminology**

* E/CONF.91/1.

** Edited by Prof. N. Kadmon, Convenor, Working Group on Toponymic Terminology.

97-34731 (E) 161297 191297

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UNITED NATIONS GROUP OF EXPERTS
ON GEOGRAPHICAL NAMES
WORKING GROUP ON TERMINOLOGY

GLOSSARY OF TOPONYMIC TERMINOLOGY

Edited by Naftali Kadmon, Convenor

PART 1: ENGLISH

Version 4.0 — 1 January 1997

Notes: Phonemic examples are shown between oblique slashes / /.
Phonetic examples are shown in square brackets [ ].
Cross references within definitions are indicated by ➡ and printed in bold type.

001	acronym	Word formed from the initial letter or letters of each of the successive or major parts of a composite term. Examples: Soweto (South West Townships); Radar; UNGEGN.
002	address	Computer location where a particular item is stored.
003	allograph	Each of the particular graphic representations of a ➡**grapheme**. Examples: in English, ff, ph and gh are allographs of f, the grapheme for the /f/ ➡**phoneme**; in German, ss = sz = ß, ä = ae.
004	allomorph	Each of two or more differing ➡**phonological** manifestations of a given ➡**morpheme**. Example: the *es* in boxes and the *en* in oxen are allomorphs of the plural morpheme.
005	allonym	Each of two or more toponyms employed in reference to a single ➡**topographic feature**. Examples: Hull, Kingston upon Hull; Vesterhavet, Nordsee; Swansea, Abertawe; Johannesburg, Egoli.
006	allonym, standardized	Each of two or more ➡**standardized** toponyms given to a single topographic feature. Examples: Biel and Bienne; Casablanca and Dār al-Bayḍā'; Kaapstad and Cape Town; Matterhorn and Monte Cervino.
007	allophone	A ➡**phone**, one of two or more ➡**phonetic** variants of a ➡**phoneme**. Examples: allophones of the /t/ phoneme in English *Tyne* as distinct from American *water*; allophones of the /r/ phoneme in Spanish *rio* as against in *Madrid*.
008	alphabet	Set of all ➡**letters** of a language with ➡**alphabetic script**, ordered in a specific sequence and provided with names for each letter.
009	alphabetic	Relating to an ➡**alphabet**.
010	alphabet, conversion	An ➡**alphabet** used in names ➡**conversion**. Comprehensive term for ➡**transcription alphabet** and ➡**transliteration alphabet**.
011	alphabet, transcription	An ➡**alphabet** that is employed in the process of ➡**transcription**. Examples: using only z, not c, to represent the dental /ts/-➡**phoneme** in transcription into German; or only k, not c, for transcribing the velar /k/ phoneme into English.

012	alphabet, transliteration	An ➡**alphabet** that may include ➡**diacritics**, employed in ➡**transliteration**. Example: alphabets used in the romanization of non-Roman script, e.g. for classical Arabic omitting C, E, O, P, V and X, but including ' and other markers.
013	alphabetic script	See **script, alphabetic**.
014	alphabetic sequence	(a) The order in which the ➡**letters** of an ➡**alphabet** are customarily cited. (b) A body of items listed in this order.
015	alphabetic sequence rules	➡**Sequence rules** for ➡**alphabetic script**.
016	alphanumeric	Representation, e.g. in a computer, which employs not only numerals but also ➡**letters**. In a wider sense, also employing punctuation marks and mathematical and other symbols.
017	anthroponym	Personal name. Examples: Alfred; 'Ali; Everest.
018	article	A ➡**morpheme** that makes explicit the (usually) definite nature of a noun, and sometimes its gender, number and case. Examples: English the; Spanish el, los, las; French le, la, les; Arabic al-; Hebrew ha-; Romanian -ul.
019	articulation	Physiological movements involved in modifying an airflow to produce speech sounds, using the vocal tract above the larynx.
020	batch processing	Method by which items are coded and collected into groups and then processed sequentially in a computer, usually at a later time. Complementary term: ➡**interactive processing**.
021	bilingualism	The habitual use, e.g. by a person or a community, of two ➡**languages**.
022	biscriptual	Written or printed in two different kinds of ➡**script**. See also ➡**multiscriptual map**; ➡**multiscriptual gazetteer**.
023	character	Graphic symbol used as a unit in writing; more specifically, a graphic symbol in a non-alphabetic writing system. Examples: Chinese 中 (zhong); Amharic ሀ (hä); Japanese Hiragana の (no).
024	character, modified	Comprehensive term for ➡**simplified character** and ➡**variant character**.
025	character, simplified	Variant of a ➡**character** which is graphically less complex than its original form. Example: Chinese simplified characters (Jiantizi) with fewer strokes than the corresponding traditional ones.
026	character, variant	Each of two or more characters in a ➡**writing system** representing the same ➡**phonological** and/or ➡**morphological item** (and if alphabetic – belonging to the same ➡**typeface**) but differing in shape, e.g. according to its location in a word. Examples: Arabic ع = ـعـ = ـع ; Hebrew ע = ע .
027	character, vowel	In ➡**alphabetic** or ➡**syllabic script**, a ➡**character**, not a ➡**marker**, representing a ➡**vowel**. Examples: Roman *a*; Thai า (a); Korean ㅏ (a); Amharic ኀ (ä, first vowel character).
028	choronym	➡**Toponym** applied to an areal feature.

029	class, feature	Grouping of topographic features with similar characteristics, to facilitate classification, search and retrieval. Example: river, creek, brook, wādī, etc., all classed under 'stream'.
030	coded representation	The representation of an item or of a =feature class by an =alphanumeric or graphic code; the result of applying a code to any member of a coded set. Examples: 0226 - main road; ^ - mountain.
031	colloquial language	See language, colloquial.
032	composite name	See name, composite.
033	compound name	See name, composite.
034	computer file	See file, computer.
035	computer program	See program, computer.
036	computer record	See record, computer.
037	consonant	One of the two main classes of =speech sounds, produced by a constriction or closure at one or more points in the breath channel. Examples: /b/, /c/, /d/, /f/ sounds. Complementary term: =vowel.
038	consonant letter	See letter, consonant.
039	consonant script	See script, defective alphabetic.
040	conventional name	See exonym. In English usage: the term for =exonym.
041	conversion	In toponymy, the process of transferring the =phonological and/or =morphological elements of a particular language to another, or from one =script to another. Conversion is effected by either =transcription or =transliteration.
042	conversion alphabet	See alphabet, conversion.
043	conversion table	Comprehensive term for =transcription key and =transliteration key. See also =romanization key.
044	coordinates, geographical	(a) The (spheroidal) net or graticule of lines of latitude (parallels) numbered 0°-90° north and south of the equator, and lines of longitude (meridians) numbered 0°-180° east and west of the international zero meridian of Greenwich, used to define location on the Earth's surface (disregarding altitude) with the aid of angular measure (degrees, minutes and seconds of arc). (b) The value of a point referred to this graticule.
045	coordinates, rectangular	(a) Grid of plane coordinates consisting of two sets of straight lines at right angles to each other and with equal units of length on both axes, superimposed on a (chiefly) =topographic map. See also =UTM grid. (b) The values of a point referred to such a grid.
046	coordinates, topographic	See coordinates, rectangular.
047	creole	A stable form of speech, derived from a =pidgin, which has become the sole or =principal language of a =speech community. Example: Haitian creole (derived from French).
048	cultural feature	See feature, man-made.

049	**data**	A representation of facts or concepts in a formalized manner suitable for communication, interpretation or processing by man or machine. Complementary term in computer usage: ➩**program**.
050	**data base (also database), digital**	Comprehensive, sometimes exhaustive, collection of ➩**computer files** and/or ➩**computer records** pertaining to a specific subject. Example: the collection of computer records for all hydrographic features in a country.
051	**data base, digital toponymic**	A ➩**digital data base** containing (all) ➩**toponyms** in a specific region, with or without accompanying data, in computer-readable form.
052	**data base management system**	A collection of ➩**software** required for using a ➩**digital data base** so as to enable independent users to access this data base.
053	**data dictionary**	Catalog of definitions of the contents of a ➩**digital data base**, including ➩**data element** reference labels, ➩**file formats**, internal reference codes and text entry, as well as their relationships.
054	**data directory**	See **data dictionary**.
055	**data element**	Description of a basic unit of identifiable and definable information to occupy a specific ➩**data field** in a ➩**computer record**. Example: 'Date of ratification of name by the names authority'.
056	**data field**	Space for a specific ➩**data element** in a ➩**computer record**. Example: the fields for the coordinates in a place name computer record.
057	**data interchange, translingual**	Data exchange (especially by computer) via standardized codes and/or terminology not bound to a particular language.
058	**data item**	Value or content of a particular ➩**data element** in a specific ➩**computer record**. Example: 01.01.97 in the ➩**data field** for 'date'.
059	**data portability**	The possibility of running and/or using the same data on different computer systems.
060	**default value**	In computer processing, an option chosen by the computer automatically in the absence of explicit instructions by the human operator.
061	**defective alphabetic script**	See **script, defective alphabetic**.
062	**descriptive term**	A word (usually a common noun, an adjective or a phrase) e.g. printed in a map, which designates a ➩**topographic feature** by its properties, but which does not constitute a ➩**toponym**. Examples: airfield, canal; water tower; perennial, seasonal (for streams).
063	**designation**	See **descriptive term**.
064	**diacritic**	A sign, usually small, placed above, below or across a ➩**letter** or group of letters in order to change the ➩**phonemic** value of the original letter(s), or to denote stress or tone, or to distinguish between two words. Examples: German ä, ö, ü; š and č in the romanization of Russian Cyrillic; ḫ in the romanization of Hebrew; Polish ł; Romanian ţ; French *où* (where) as against *ou* (or). See also ➩**marker**.
065	**diacritical mark, diacritical sign**	See **diacritic**.

066	dialect	Regionally or socially distinctive variety of a =language, characterised and identified by a particular set of words, grammatical structures and pronunciation. The distinction between =dialect and =language is sometimes difficult to establish. See also =diglossia; =vernacular.
067	dictionary, geographical	List of geographical terms and/or names, usually arranged in =alphabetical order, providing definitions, explanatory information or descriptive data for each item.
068	digital data base	See data base, digital.
069	digital toponymic data base	See data base, digital toponymic.
070	diglossia	A relatively stable linguistic situation in which two different varieties of a single =language co-occur in a =linguistic community, one (the 'high' variety) usually being the more formal and prestigious; the other (the 'low') variety being used in more informal settings, chiefly in conversation. Examples: Greek Katharévousa ('high') and Dhimotiki ('low'); Arabic al-fuṣḥa and al-'ammiyah; in Swiss German: Hochdeutsch and Schwyzerdütsch. In a wider sense also a co-occurrence of two unrelated languages such as Spanish and Guarani in Paraguay.
071	diglossic	Referring to =diglossia.
072	digraph	Sequence of two =letters, which represent a single =phoneme. Examples: for / ʃ /, sj in Dutch, ch in French, sh in English. In some languages, certain digraphs are listed separately in the alphabetic sequence, e.g. *ll* in Spanish, *ch* in Czech and Slovak. See also =ligature.
073	diphthong	Combination of two (or three, in triphthong) vocalic elements in a single syllable. Examples: for /aɪ/, ei in German 'bei', i in English 'time'.
074	donor language	See language, source.
075	donor script	See script, source.
076	endonym	Name of a geographical feature in one of the languages occurring in that area where the feature is situated. Examples: Vārānasī (not Benares); Aachen (not Aix-la-Chapelle); Krung Thep (not Bangkok); al-Uqṣur (not Luxor); Teverya (not Tiberias).
077	endonym, standardized	=Endonym sanctioned by a names authority. Example: among the =allonyms Hull and Kingston upon Hull (England), the latter is the standardized form.
078	entity, topographic	See topographic feature.
079	eponym	Name of a person after or for whom a place is named. Examples: Iago (James) in Santiago; Everest in Mount Everest; Mūsa (Moses) in Wādī Mūsa.
080	epotoponym	A =toponym which constitutes the basis or origin of a common noun. Examples: Jerez (for sherry); Olympía (for Olympiad); al-Burtughāl, the Arabic name of Portugal (for Burtuqāl, also Burtuqān, i.e. an orange in Arabic).

081	exonym	Name used in a specific language for a =geographical feature situated outside the area where that language has official status, and differing in its form from the name used in the official language or languages of the area where the geographical feature is situated. Examples: Warsaw is the English exonym for Warszawa; Londres is French for London; Mailand is German for Milano. The officially romanized endonym Moskva for Москва is no exonym, nor is the Pinyin form Beijing, while Peking is an exonym. The United Nations recommend minimizing the use of exonyms in international usage. See also =name, traditional.
082	extraterrestrial feature	See feature, extraterrestrial.
083	extraterrestrial name	See name, extraterrestrial.
084	false generic element	See generic element, false.
085	feature class	See class, feature.
086	feature name	See toponym.
087	feature, cultural	See feature, man-made.
088	feature, extraterrestrial	A =topographic feature on any planet other than Earth, or on a satellite. Example: a crater on the moon.
089	feature, geographical	=Topographic feature on the surface of the Earth.
090	feature, hydrographic	=Topographic feature consisting of water, or associated mainly with water but not consisting of dry land. Examples: lake; underground reservoir; but not an island.
091	feature, man-made	=Topographic feature made, or significantly modified, by man. Examples: canal; road; populated place. Complementary term: =feature, natural.
092	feature, natural	=Topographic feature not made or significantly modified by man. Examples: river (but not canal); forest (but not plantation). Complementary term: =feature, man-made.
093	feature, physical	Any =topographic feature which can be observed visually. Examples: mountain; river; road; building; but not e.g. an unmarked political boundary.
094	feature, topographic	A portion of the surface of the Earth or of any other planet or satellite that has recognizable identity.
095	feature, undersea	A portion of that part of the Earth which lies beneath the surface of an ocean or a sea, and which has recognizable identity. Examples: Dogger Bank, Mariana Trench.
096	field, data	See data field.
097	file format	See format, file.
098	file, computer	Organized, ordered and named collection of =computer records.
099	firmware	Computer =programs and procedures programmed onto a card or board and inserted into or fixed in a computer. It is not changeable by =software commands.
100	font	A typeface of a specified type, style and size. Example: **12-point bold Times New Roman**; *10 cpi (character-per-inch) Brougham italic.*

101	format	Size and general arrangement of a written or printed document. See also ➥format, file.
102	format, computer	See format, file.
103	format, file	The arrangement of data in a ➥computer file (e.g. records and fields, numeric and ➥alphanumeric, fixed or floating-point, etc.). Usually referred to simply as format.
104	full title	See long form (of a name).
105	gazetteer	List of ➥toponyms arranged in alphabetic or other sequential order, with an indication of their location and preferably including variant names, type of ➥topographic feature and other defining or descriptive information.
106	gazetteer, index	Ordered list of toponyms, with or without additional data, serving as a guide to the source in which they appear. Example: index gazetteer appended to an atlas.
107	gazetteer, multilingual	➥Gazetteer which, for a particular topographic feature, shows ➥allonyms in different languages, not necessarily ➥standardized. Examples: Athens (Athína); Moscou (Moskva).
108	gazetteer, multiscriptual	➥Gazetteer which presents ➥toponyms in two (biscriptual) or more different types of ➥script or ➥writing system. Examples: Αθήνα, Athina; נצרת, Nazareth; Владивосток, Vladivostok.
109	gazetteer, place names	Term sometimes applied to a list of populated places. See also name, place (b).
110	generic element	That part of a ➥toponym which consists of a ➥generic term. Examples: Port-au-Prince; Sierra Nevada, Newport. The generic element does not necessarily indicate the type or class of feature of the item named. See also ➥false generic element. Complementary term: ➥specific element.
111	generic element, false	➥Generic element which does not indicate the feature class of the item named. Examples: Mount Isa, 'Ayn as-Sulṭān, Redhill and Rio de Janeiro are all populated places, not a mountain, spring, hill or river, respectively.
112	generic term	A common noun which describes a ➥topographic feature in terms of its characteristics and not by its proper name. Examples: mountain, sierra, san, shan, dagh, jabal, har; river, wādī, gang. It may form part of a ➥toponym; see ➥generic element. See also ➥generic element, false.
113	geographical dictionary	See dictionary, geographical.
114	geographical entity	See feature, geographical.
115	geographical feature	See feature, geographical.
116	geographical name	See name, geographical.
117	geographical names standardization	See standardization, geographical names.
118	geographic information system (GIS)	Computerized multi-purpose system combining input, processing and output of geographically-referenced ➥data, which often includes maps and ➥toponyms.
119	GIS	See geographic information system.

120	glossary	Specialized list of terms relating to a particular field of study or interest, which may contain explanatory or descriptive information on the items listed. Example: glossary of terms employed in the standardization of geographical names.
121	grammar	The field of study dealing with the formal features of a ➡**language** and the rules that govern their combination, reference and interpretation.
122	grapheme	Graphic representation of a ➡**phoneme** in a particular ➡**language**. Examples: j is the ➡**grapheme** for the /dʒ/ ➡**phoneme** in English and for /ʒ/ in French.
123	graphic form	Written or printed ➡**character(s)**, including any ➡**diacritics**, which represent a linguistic item such as a name. Distinct from spoken and digital form.
124	graticule	See coordinates, geographical (a).
125	grid, topographic	See coordinates, rectangular (a).
126	guidelines, toponymic	Set of rules governing the ➡**standardization** of a country's ➡**toponyms** and their presentation in maps and ➡**gazetteers**.
127	hardware	Reference to the computer itself (central processing unit, CPU), as well as to all peripheral input and output devices such as monitors, disks, tape consoles, printers, plotters, digitisers, scanners, etc. Complementary term: ➡**software**.
128	historical name	See name, historical.
129	hodonym	See odonym.
130	homonym	Each of two or more identical ➡**toponyms** denoting different ➡**topographic features**. Example: Monacó (Principauté de) and Monaco (di Baviera), the Italian ➡**exonym** for München.
131	hydrographic feature	See feature, hydrographic.
132	hydronym	➡**Toponym** applied to a ➡**hydrographic feature**.
133	hyphenization, also hyphenation	(a) In toponymy, joining two or more elements of a ➡**composite name** by hyphens; this normally prevents change of word order in an ➡**alphabetic** listing such as a ➡**gazetteer**. Examples: Höhr-Grenzhausen; Tel-Aviv; Pointe-Sapin-Centre. (b) Placing hyphens between the syllables of a word or between words.
134	ideogram	(a) Graphic symbol which symbolizes a thing or an idea but not necessarily a particular word for it. Used by some writers for ➡**logogram**. (b) In Egyptian hieroglyphs, a determinative indicating the meaning of (clustered) ➡**phonograms**.
135	ideographic script	See script, logographic.
136	index, names	See index, toponymic.
137	index, place names	See index, toponymic. Sometimes applied to populated places only. See also ➡**place name**.
138	index, toponymic	Ordered list of ➡**toponyms**, including data about location but little or no additional information.

139	indigenous language	See language, indigenous.
140	indigenous name	See name, indigenous.
141	interactive processing	In a computer system, the process of interacting directly with a ➡**program** and/or ➡**data** for immediately modifying, retrieving and/or displaying information. This is usually done on a computer screen. Complementary term: ➡**batch processing**.
142	interface	A common boundary at which two different computer systems or portions thereof join or intersect. It can be mechanical or electronic, and can also refer to the interaction between man and computer.
143	International Phonetic Alphabet, IPA	An internationally recognized set of symbols for ➡**phonetic transcription**. Some examples of IPA notation: [ŋ] for the 'ng' sound in English 'sing'; [ʃ] for the English 'sh' sound; [a] for 'a' in 'art' but [ɛ] for a in 'any'; [ɥ] for consonantic 'u' in French 'Suisse'.
144	international standardization	See standardization, international, geographical names.
145	language	In the context of this glossary, a means of verbal communication used by a large community, including the words, their pronunciation and the methods of combining them.
146	language, colloquial	Form of ➡**language** used in informal ➡**speech**, differing noticeably from that used in formal speech and writing. See also ➡**dialect**; ➡**diglossia**.
147	language, donor	See language, source.
148	language, indigenous	➡**Language** native to a given region.
149	language, literary	Written form of a ➡**language**, regarded as the desirable standard for works of literature. May also form the basis of formal speech. Example: Arabic Naḫwī as against colloquial dialects. See also ➡**diglossia**.
150	language, minority	In a specific region, a ➡**language** which is different from the ➡**official language** of state administration and which is spoken by a national minority. It may or may not have official status. Examples: Swedish in Finland, Breton in France, Frisian in the Netherlands.
151	language, national	➡**Language** in widespread and current use throughout a specific country or in parts of its territory, and often representative of the identity of its speakers. It may or may not have the status of an ➡**official language**. Example: Rhaeto-Romance (Rätoromanisch) in parts of Switzerland.
152	language, non-official or unofficial	➡**Language** which, though relatively widely used, lacks officially sanctioned status in a particular legally constituted political entity. Example: French in Lebanon; English in Israel.
153	language, official	A ➡**language** which has legal status in a particular legally constituted political entity such as a state or part of a state, and which serves as a language of administration. Examples: Spanish in Chile; Italian and German in Alto Adige (Italy).
154	language, principal	In a ➡**linguistic community** where more than one ➡**language** is in use, that language which has the most adherents. Example: German, not Italian, in Alto Adige (Italy); English, not Welsh, in Wales.
155	language, receiver	See language, target.

156	language, source	➡**Language** from which a name is transformed to, or adopted by, another language, the ➡**target language**. Example: in ➡**conversion** from Russian to Chinese, the former is the source language.
157	language, standard	That form of speech and/or writing of a language which is specified as correct by an officially appointed or widely recognized authority, or, in the absence of such an authority, which is generally accepted as correct in a ➡**linguistic community**. Examples: Hochdeutsch in German; Algemeen Beschaafd Nederlands in the Netherlands.
158	language, target	Language in terms of which a toponym may be adopted or transformed from its ➡**source language**. Example: in ➡**conversion** from Arabic to French, the latter is the target language.
159	language, vehicular	Language which serves communication between members of different ➡**linguistic communities**. Example: English is the vehicular language of civil aviation throughout most of the world.
160	letter	Graphic symbol serving as unit ➡**character** in an ➡**alphabet**.
161	letter, basic	Fundamental form of a ➡**letter** without ➡**diacritics**. Examples: Polish l as against ł; Icelandic D as against Ð.
162	letter, consonant	➡**Letter** of an ➡**alphabet** representing a consonant. Examples: Roman b, d; Greek β, δ; Thai ข , ฎ ; Arabic ب , د ; Korean ㅂ , ㄷ .
163	letter, vowel	➡**Letter** of an ➡**alphabet** representing a vowel. Examples: Roman a, e, i, o, u; Greek α, ϵ, η, ι, o, υ, ω; Russian а, е, и, о, у; Hebrew א ; Thai ิ , Korean ㅗ, ㅜ .
164	lettering, map	(a) ➡**Map script** in an ➡**alphabetic** writing system. In a wider sense, **map script**. (b) Activity of inserting (➡**alphabetic**) script in a map.
165	lettering, multilingual	➡**Map lettering** in a ➡**multilingual map**.
166	lettering, multiscriptual	➡**Map lettering** in a ➡**multiscriptual map**.
167	letters, cardinal	Those ➡**letters** of a ➡**script** which are contained in most ➡**alphabets** that use this script. Examples: the Roman alphabet excluding e.g. the letters K, Q, X; the traditional Arabic letters of the Persian (Farsi) alphabet. Complementary term: ➡**letters, special**.
168	letters, special	Those ➡**letters** of the ➡**alphabet** of a particular language which are characteristic of, or unique to, this language, being absent in all or most other alphabets using the same script. Examples: Danish ø; Icelandic þ, ð; German ß; Persian ﺱ . Complementary term: ➡**letters, cardinal**.
169	lexicon	(a) A dictionary or ➡**glossary** relating to a particular language or sphere of interest. (b) The vocabulary of an individual person, an occupational group or a professional field.
170	lexicon, logographic	An ordered list of the ➡**characters** of a ➡**logographic script**; the counterpart of an ➡**alphabet** in ➡**alphabetic script** and of a ➡**syllabary** in ➡**syllabic script**.

171	ligature	A graphic stylized combination of two ➡letters, or a connecting line or stroke, indicating that successive sounds are to be pronounced as one. Examples: œ (derived from *o* + *e*); kh , pronounced as ➡IPA /x/ or German *ch* in *ach*.
172	lingua franca	Auxiliary language used for communication between groups of people with different native languages. Examples: Swahili in East Africa, Quechwa in the Andean regions. See also ➡pidgin.
173	linguistic area	See linguistic region.
174	linguistic community	A group of people who communicate with relative ease in a common ➡language or ➡dialect.
175	linguistic region	Region or area where a particular language constitutes the ➡official or ➡principal language. Example: the Flemish and Walloon regions in Belgium.
176	linguistics	The scientific study of human language in all its aspects, including, ➡phonetics, ➡phonology, ➡morphology, ➡syntax and ➡semantics.
177	literary language	See language, literary.
178	local name	See name, local.
179	logogram	Graphic symbol or combination of symbols which represents an entire free ➡morpheme such as a word, without separately representing its constituent ➡phonemes or ➡syllables. Examples: Chinese 中 for zhong (middle); Japanese Kanji 山 for san or yama (mountain).
180	logographic	Consisting of or relating to ➡logograms.
181	logographic lexicon	See lexicon, logographic.
182	logographic script	See script, logographic.
183	long form (of a name)	Complete form of a toponym (in particular the name of a country), including all components. Examples: Al-Mamlakah al-Hāshimīyah al-Urdunīyah (The Hashemite Kingdom of Jordan); Zhonghua Renmin Gongheguo (People's Republic of China). Complementary term: ➡short form; in the above examples – Al-Urdun (Jordan); Zhongguo (China).
184	lunar name	See name, lunar.
185	man-made feature	See feature, man-made.
186	map lettering	See lettering, map.
187	map, multilingual	Map which, for a particular topographic feature, shows ➡allonyms in different ➡languages, not necessarily ➡standardized. Examples: Athens, Athína; Moscou, Moskva.
188	map, multiscriptual	Map which presents toponyms in two (biscriptual) or more different types of ➡script or ➡writing systems. Examples: Αθήνα, Athens; נצרת, Nazareth; Владивосток, Vladivostok.
189	map script	➡Toponyms and other verbal and numerical items such as descriptive terms and spot and contour elevations in a map. See also ➡lettering, map.
190	map script, multilingual	➡Map script in a ➡multilingual map.

191	map script, multiscriptual	➡Map script in a ➡multiscriptual map.
192	map, thematic	Any geographical map devoted to a special subject and not showing only the surface configuration of the Earth. Examples: geological map, historical map, airways chart. Complementary term: ➡topographic map.
193	map, topographic	A map having as its object the representation of the surface of the Earth or the Moon or of a planet or its satellites, and its ➡topographic features – natural and man-made. Complementary term: ➡map, thematic.
194	maritime name	See name, maritime.
195	marker	Graphic symbol representing a ➡phoneme, ➡morpheme or other element of a language and used only in combination with an independent ➡letter or ➡syllabogram. Example: Arabic shaddah (doubling marker).
196	marker, vowel	A ➡marker employed in ➡defective alphabetic script to represent a ➡vowel. Examples: Arabic ـَ , ـِ , ـُ (a, i, u); Hebrew ◌ַ, ◌ֶ, ◌ִ, ◌ֹ, ◌ֻ (a, e, i, o, u), Thai ◌ั , ◌ิ , ◌ุ (a, i, u).
197	menu, computer	List of options available to an operator, usually displayed in graphic or ➡alphanumeric form on the computer screen.
198	minority language	See language, minority.
199	minority name	See name, minority.
200	modified character	See character, modified.
201	morpheme	The minimal distinctive unit in ➡grammar; the smallest functioning unit in the composition of words. Example: 'names' consists of the free morpheme 'name' and the bound plural morpheme 's'.
202	morphological	Relating to ➡morphology.
203	morphology	The branch of ➡grammar which studies the structure and form of words in a language.
204	mother tongue	The first language acquired within one's family.
205	multilingual gazetteer	See gazetteer, multilingual.
206	multilingual map	See map, multilingual.
207	multiscriptual gazetteer	See gazetteer, multiscriptual.
208	multiscriptual map	See map, multiscriptual.
209	name	(a) See noun, proper. (b) In the specific context of this glossary: a ➡toponym.
210	name, alternative	See allonym.
211	name, approved	See name, standardized.
212	name, composite	➡Toponym consisting of a ➡generic element and a ➡specific element, or of a specific element consisting of more than one word. Examples: Mount Cook; Newport; Newfoundland; Kemijoki; Rostov na Donu; Sierra Nevada Oriental; Stoke on Trent. Complementary term: ➡name, simplex.

213	name, compound	See name, composite.
214	name, conventional	See exonym.
215	name, extraterrestrial	**•Toponym** applied to an **•extraterrestrial feature**. Example: Nix Olympica (on Mars).
216	name, geographical	**•Name** applied to a feature on Earth; a special case of a **•topographic name** or **•toponym**.
217	name, historical	**•Toponym** found in historical document(s) and being no more in current use. Examples: Eboracum (for York, England); Mediolanum (for Milano, Italy); New Amsterdam (for New York, USA); Edo (for Tokyo, Japan).
218	name, indigenous	Toponym in, or derived from, an **•indigenous language**. Examples: Culabah (Aboriginal, Australia), Empangeni (Zulu, South Africa).
219	name, local	**•Toponym** applied by a geographically limited sector of a **•linguistic community** to a feature within its area. It may differ from the **•standardized name**.
220	name, lunar	**•Toponym** applied to a feature on the surface of the Moon. Examples: Gagarin; Mare Tranquillitatis.
221	name, maritime	Name of a **•hydrographic feature** associated with the sea. Examples: Estrecho de Magallanes, Bottenhavet/Selkämeri, English Channel.
222	name, minority	Toponym in a **•minority language**.
223	name, official	**•Toponym** sanctioned by a legally constituted (e.g. national) **•names authority** and applied within its jurisdiction.
224	name, place	(a) See toponym. (b) Synonym used by some writers for name of populated place.
225	name, primary	Descriptive name expressed in local terms and language. Examples: Ar-Rub' al-Khālī (the empty quarter, Saudi Arabia); Dasht-e Kavīr (big desert, Iran).
226	name, proper	See noun, proper.
227	name, simplex	Single-word **•toponym**, usually consisting of a specific component only. Examples: Kyiv; Temuko; Malawi. Al-Qāhirah (Cairo) is also a simplex name, since in the original Arabic the article al- constitutes a bound **•morpheme**, i.e. an integral unhyphenated prefix. Complementary term: **•name, composite**.
228	name, standardized	Name sanctioned by a **•names authority** as the preferred name from among a number of **•allonyms** for a given feature. However, a single feature may have more than one standardized name. Example: Kaapstad and Cape Town (but not Capetown).
229	name, topographic	See toponym.
230	name, traditional	An **•exonym** in relatively widespread use by a particular **•linguistic community** and usually found in its tradition and literature. Examples: Alexandrie (French) for al-Iskandarīyah (Arabic); Jerusalén (Spanish) for Yerushalayim (Hebrew); Peking (English) for Beijing (Chinese).
231	name, variant	See allonym.

232	names authority	(a) A body such as a person, board or commission, assigned advisory function and/or power of decision in matters of **toponymy** by a legally constituted entity such as a state. (b) An authority charged with issuing **standardized toponyms**.
233	names conversion	See conversion.
234	names index	See index, toponymic.
235	names survey	See survey, toponymic.
236	names transformation	See transformation, names.
237	national language	See language, national.
238	national standardization, geographical names	See standardization, national, geographical names.
239	natural feature	See feature, natural.
240	noise, graphic	That which hinders, obstructs or obscures the clear transmission or reception of a graphic message. Examples: 'snow' on a television screen; cluttering of a map with too dense graphic information; fuzzy map script.
241	non-official language	See language, non-official.
242	non-vocalized	A written word or text which does not include **vocalization**.
243	non-vowelled	See non-vocalized.
244	normalization	See standardization.
245	noun, common	A word designating any one of a particular kind of being, place or thing. Examples: toponym, gazetteer, city.
246	noun, proper	A word which uniquely identifies an individual person, place or thing. Examples: Albert, Beijing, Budapest.
247	odonym	**Proper noun** of a traffic route feature. Examples: Via Appia (historical road); Airway Amber (air traffic route); M4 (motorway); Fleet Street; Piccadilly Circus; Darb al-Ḥājj (pilgrims' route).
248	official language	See language, official.
249	onomastics	(a) The science that has as its object the study of **names**. (b) The activity or process of giving names.
250	oronym	Name applied to a feature of topographic elevation such as a mountain or a hill. Examples: Matterhorn; Gaurīśankar; Fuji San; Sierra Madre.
251	orthography	Spelling of words according to the prescribed rules of a given linguistic tradition.
252	phone	In **phonetics**, the smallest perceptible unit of sound in the stream of speech, usually symbolized by square brackets. A specific **phoneme** can be realized by different phones called **allophones**. Examples: [ß] for the 'b' sound in Spanish *saber* as against [b], the 'b' sound in Spanish *Barcelona*.

253	phoneme	The smallest unit of sound in the ➡phonological structure of a ➡language which changes meaning, usually symbolized by oblique slashes. Examples: /b/; /p/; / ʃ / (for English sh). In practice a phoneme is realized by variants called ➡allophones, usually symbolized by square brackets, such as [b] in Spanish *Barcelona* and [ß] in *saber* for the /b/ phoneme, or [e], [ẽ], [ɛ] and [ɛ̃] for different realizations of the /e/ phoneme. See also ➡phone.
254	phonemic	Relating to ➡phonemes.
255	phonetic, phonetical	Relating to ➡phonetics.
256	phonetics	The study and classification of sounds made in spoken language. The minimal phonetic unit is the ➡phone.
257	phonogram	(a) Graphic ➡character representing sound(s). (b) In particular, a ➡pictogram representing not the meaning of its object but the sound of its name in a particular language. Examples: pictograms of Egyptian hieroglyphs when used to represent phonetic values, e.g. □ (a seat) for p, the initial sound of the word for 'seat'.
258	phonological	Relating to ➡phonology.
259	phonology	The study of speech sounds and their functions in a specific ➡language or in two or more languages considered together for comparative purposes.
260	physical feature	See feature, physical.
261	pictogram	Graphic symbol which represents an object via graphic-visual similarity in order to convey either its meaning or the sound of its name. See also ➡phonogram.
262	pidgin	A relatively stable form of speech developed as an auxiliary language, whose vocabulary and sphere of employment are narrowly limited and whose ➡grammar, ➡phonological structure and style are simpler than those of the ➡language(s) from which it was evolved. Examples: Tok Pisin (Neo-Melanesian) based on English; Bazaar Malay in Malaysia-Indonesia; Petit Mauresque (French-based, in North Africa); Fanagaló (mainly from Zulu, South Africa). A pidgin which becomes the ➡mother tongue of a ➡linguistic community is said to be creolized. See also ➡creole.
263	pixel	➡Acronym for 'picture element'; the unit of storage and display in ➡raster mode.
264	place name	See toponym; name, place (b).
265	place name index	See index, place names.
266	portability, data	See data portability.
267	principal language	See language, principal.
268	program, computer	A set of instructions directing the computer which operations to perform. Complementary term: ➡data; these can be operated upon by a program.
269	proper name	See noun, proper.
270	proper noun	See noun, proper.

271	radical, radix	Basic form of a ▪logographic character. Example: one of the approximately 240 Chinese basic ▪characters which represent categories of sense, such as the character for 'wood' on the basis of which the logograms for specific kinds of woods, trees etc. are constructed. (b) See root.
272	raster mode	In a computer, storage and display of data on a dense grid of ▪pixels arranged in columns and rows. Example: Satellite images are normally stored in raster mode. Complementary term: ▪vector mode.
273	receiver language	See language, target.
274	receiver script	See script, target.
275	record, computer	Computer-readable collection of related ▪data pertaining to a single topical item and treated as a unit. Example: a single toponym and its related data such as coordinates, date of ratification and origins.
276	rectangular coordinates	See coordinates, rectangular.
277	retranscription	Re-conversion of a result of ▪transcription into the ▪source language.
278	retransliteration	Re-conversion of a result of ▪transliteration into the ▪source script. See also ▪reversibility.
279	reversibility	A characteristic of ▪transliteration which permits a written item to be converted from one ▪script or ▪writing system into another, and subsequently to be reconverted back into the ▪source script, the result being identical with the original.
280	romanization	▪Conversion from non-Roman into Roman ▪script. Examples: Αθήνα → Athina; Москва → Moskva; بيروت → Bayrūt; תל-אביב → Tel-Aviv; 二 ホ ン → Nihon or Nippon.
281	romanization key	Table listing the ▪characters of a non-Roman ▪script together with corresponding ▪letters of a Roman ▪alphabet, including ▪diacritics as required. Examples: Roman šč for Russian Cyrillic Щ; Roman ps for Greek Ψ. Special case of ▪transliteration key.
282	root	Reference to a basic item in ▪linguistics. Example: the stem from which a word is derived, such as the cluster of three consonants in Semitic words, e.g. n z l for nazala (Arabic 'descend') or y r d for yarad ('descend' in Hebrew) and all their derivatives.
283	script	A set of graphic symbols employed in writing or printing a particular language, differing from another set not only by ▪typeface or ▪font. Groups of different scripts form ▪writing systems. Examples: Roman, Greek, Cyrillic, Arabic, Korean, Thai and Hebrew scripts belong to the ▪alphabetic writing system; Amharic, Japanese Kana and Inuktitut (Eskimo) to the ▪syllabic; Chinese Han and Japanese Kanji to the ▪logographic.
284	script, alphabetic	Script belonging to the ▪alphabetic ▪writing system in which a single ▪letter or ▪di- or trigraph in principle represents a single ▪phoneme or ▪diphthong. Examples: Roman, Greek, Cyrillic, Thai, Arabic and Hebrew are alphabetic, but the latter two are ▪defective, i.e. mainly ▪consonant scripts. In (alphabetic) Korean (Hangŭl), letters are graphically organized in roughly square syllabic units.

285	**script, consonant**	See script, defective alphabetic.
286	**script, defective alphabetic**	▪**Alphabetic script** in which the letters exclusively or predominantly represent ▪**consonants**, ▪**vowels** being exclusively or primarily represented by non-letter ▪**markers** in the form of dots or bars above, below or within the ▪**consonant letters**. Examples: Arabic and Hebrew. See also ▪**vowel marker**.
287	**script, donor**	See script, source.
288	**script, ideographic**	See script, logographic.
289	**script, logographic**	A ▪**script** consisting of ▪**logograms** and belonging to the ▪**logographic** ▪**writing system**. Examples: Chinese; Japanese Kanji.
290	**script, map**	See map script.
291	**script, original**	See script, source.
292	**script, receiver**	See script, target.
293	**script, source**	A ▪**script** in terms of which a ▪**toponym** is produced, and on the basis of which it may be converted for use in another script called ▪**target script**.
294	**script, syllabic**	A ▪**script** belonging to the ▪**syllabic** ▪**writing system** in which all, or the majority of, ▪**characters** each represent an entire **syllable**. Examples: Ethiopian Amharic; Japanese Katakana and Hiragana; Inuktitut ▪**syllabics**. Korean (Hangûl), though alphabetic, is graphically and visually syllabic.
295	**script, target**	A ▪**script** into which a ▪**toponym** may be converted from its ▪**source script**. See also ▪**transliteration**. Example: Roman script in the ▪**romanization** of Greek.
296	**segment**	In ▪**linguistics**, any discrete unit which can be identified in the stream of speech. Examples: ▪**phonemes**; ▪**consonants**; ▪**vowels**.
297	**semantics**	That branch of ▪**linguistics** which deals with meaning.
298	**sequence rules**	Rules that indicate in which order words (e.g. ▪**toponyms** in a gazetteer) should be arranged with respect to the sequence of their ▪**letters**, ▪**syllabograms** or ▪**logograms**. Problems may arise especially with letters omitted in the conventional way of citing the ▪**alphabet** or letters with ▪**markers** or ▪**diacritics** such as ä, ö, ü, ß in German; ll or ñ in Spanish as well as with hyphenated words.
299	**short form (of a name)**	In toponymy, the abbreviated or short version of a name. Examples: China, for People's Republic of China; Jordan, for The Hashemite Kingdom of Jordan. Complementary term: ▪**long form**.
300	**short title**	See short form (of a name).
301	**sign, diacritical**	See diacritic.
302	**simplex name**	See name, simplex.
303	**simplified character**	see character, simplified.
304	**software**	▪**Programs**, procedures and ▪**data** associated with the operation of a computer system. Complementary term: ▪**hardware**.
305	**source language**	See language, source.
306	**source script**	See script, source.

307	specific element	That part of a ▪toponym which does not constitute a ▪generic term and which distinguishes it from others of the same ▪feature class. It may include an ▪article and/or other linguistic elements. Examples: Port Elizabeth; Rio Negro; Cape of Good Hope.
308	speech	An oral manifestation of ▪language.
309	speech community	A group of people who communicate orally with relative ease in a common ▪language or ▪dialect.
310	standard language	See language, standard.
311	standardization	(a) The establishment, by an appropriate authority, of a specific set of standards or norms, e.g. for the uniform rendering of ▪toponyms. (b) Rendering an item such as a ▪toponym in accordance with such norms.
312	standardization, geographical names	The prescription by a ▪names authority of one or more particular ▪names, together with their precise written form, for application to a specific ▪geographical feature, as well as the conditions for their use. In a wider sense, standardization of ▪toponyms.
313	standardization, international, geographical names	Activity aimed at reaching maximum practical uniformity in the rendering – oral and written – of all ▪geographical names on Earth (and in a wider sense, of ▪toponyms of ▪extraterrestrial features), by means of (1) ▪national standardization, and/or (2) international convention, including the correspondence between different languages and writing systems.
314	standardization, national, geographical names	▪Standardization of ▪geographical names within the area of a national entity such as a state.
315	standardized allonym	See allonym, standardized.
316	standardized name	See name, standardized.
317	standardized toponym	See name, standardized.
318	survey, names	See survey, toponymic.
319	survey, toponymic	The entire spectrum of activities involved in the collection, recording and processing of ▪toponyms in a specified area.
320	syllabary	An ordered set of ▪syllabograms representing all ▪syllables of a particular language which uses ▪syllabic script. Example: the set of syllabograms of Japanese Katakana – ア, ハ, サ, タ, ナ, ハ, マ for a, ka, sa, ta, na, ha, ma, respectively, etc.; Inuktitut ᐱ, ᐳ, ᐸ, ᑎ, ᑐ, ᑕ for pi, pu, pa, ti, tu, ta, etc.
321	syllabic (as a noun)	See syllabogram. Predominantly used in the plural as syllabics.
322	syllabic (as an adjective)	Consisting of or relating to ▪syllables.
323	syllabic script	See script, syllabic.
324	syllabification	Division of a word into ▪syllables. Examples: Val-pa-ra-i-so; O-ban.
325	syllable	Unit of ▪speech including (or consisting of) a single ▪vowel sound or vowel function, or a ▪diphthong or a triphthong; the first division of a word. Examples: Ge-no-va in Genova; Hei-del-berg in Heidelberg; Br-no in Brno.

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326	syllabogram	Graphic ⇒character representing a ⇒syllable in ⇒syllabic script.
327	synonym	Each of two or more words which have approximately the same meaning.
328	syntax	That part of ⇒linguistics which deals with the mutual relations between, and correct arrangement of, words in a sentence.
329	target language	See language, target.
330	target script	See script, target.
331	tetragraph	Four ⇒letters employed together in a particular order to represent a single ⇒phonological or graphical element in a specific language. Examples: German tsch for the /t ʃ / ⇒phoneme as in Tschad, the German transcription of Chad; English shch for Russian Щ .
332	thematic map	See map, thematic.
333	topographic category	See feature class.
334	topographic feature	See feature, topographic.
335	topographic map	See map, topographic.
336	topographic name	See toponym.
337	topography	(a) The surface configuration of the Earth or of another planet or a satellite, or of a portion thereof, including the planimetric and altimetric aspects, i.e. the situation in the map plane and the relief. (b) Description and graphic representation of the above.
338	toponomastics	The activity or process of conferring ⇒toponyms.
339	toponym	Proper noun applied to a ⇒topographic feature. Comprehensive term for ⇒geographical names and ⇒extraterrestrial names.
340	toponym, standardized	See name, standardized.
341	toponym, variant	See allonym.
342	toponymic guidelines	See guidelines, toponymic.
343	toponymic index	See index, toponymic.
344	toponymy	(a) The science which has as its object the study of ⇒toponyms in general and of ⇒geographical names in particular. (b) The totality of ⇒toponyms in a given region.
345	traditional name	See name, traditional.

346 **transcription**

(a) A method of phonetic names ⇨conversion between different languages, in which the sounds of a ⇨source language are recorded in terms of a specific ⇨target language and its particular ⇨script, normally without recourse to additional ⇨diacritics.

(b) A result of this process. Examples: Turkish Ankara → Greek Αγκαρα; Russian Шукино → English Shchukino; Arabic جبلية → French Djabaliya.

Transcription is not normally a reversible process. ⇨Retranscription (e.g. by computer) might result in a form differing from the original, for example in the above cases in Turkish Agkara, Russian Шчукино, Arabic جبجبلية .

However, Pinyin romanization of Chinese, although being a conversion between scripts, but being phonetic and non-reversible, is also regarded as transcription and not as ⇨transliteration. See also ⇨transcription key.

347 **transcription alphabet**

See alphabet, transcription.

348 **transcription key**

Table listing the characters of a particular ⇨source language with the corresponding characters of a specific ⇨target language. Examples: English sh for Hungarian s; German sch for Dutch sj; but also Roman bei for Chinese 贝,北,鲅,阜,背,倍,碑 . See also ⇨transcription.

349 **transformation, names**

In toponymy, general term covering the ⇨translation, ⇨transcription and ⇨transliteration of toponyms. The two latter terms constitute ⇨conversion.

350 **translation**

(a) The process of expressing meaning, presented in a ⇨source language, in the words of a ⇨target language.

(b) A result of this process. In toponymy it is sometimes applied only to the ⇨generic element of a name. Examples: Mer Noire (French for Russian Černoje More); Casablanca (Spanish for Arabic Dār al-Bayḍā'); Lake Como (English for Italian Lago di Como); Mount Fuji (English for Japanese Fuji San).

351 **translingual data interchange**

See data interchange, translingual.

352 **transliteration**

(a) A method of ⇨names conversion between different ⇨alphabetic scripts and ⇨syllabic scripts, in which each ⇨character or ⇨di-, tri- and tetragraph of the ⇨source script is represented in the ⇨target script in principle by one character or di-, tri- or tetragraph, or a ⇨diacritic, or a combination of these. Transliteration, as distinct from ⇨transcription, aims at (but does not necessarily achieve) complete ⇨reversibility, and must be accompanied by a ⇨transliteration key.

(b) A result of this process. Examples (with English ⇨exonyms in parentheses): القاهرة → al-Qāhirah (Cairo); Владивосток → Vladivostok; חיפה → Ḥefa (Haifa); አዲስ አበባ → Adis Abgba (Addis Abbeba).

353 **transliteration alphabet**

See alphabet, transliteration.

354	**transliteration key**	Table listing the ➩**characters** of a particular ➩source script together with the corresponding characters of a specific ➩**target script**. Also called ➩**conversion table**. Examples: Roman po (and not bo) for Japanese Katakana ポ; Russian Cyrillic п for Roman d; Hebrew ט and not ת for Thai ฎ.
355	**trigraph**	Sequence of three letters which represent a single ➩**phoneme**. Example: for / ʃ /, sch in German.
356	**typeface**	Style or design of a set of all print ➩**characters** of an ➩**alphabet**, regardless of size. Examples: Times New Roman; ***Univers bold italic***. See also ➩**font**.
357	**undersea feature**	See feature, undersea.
358	**UNGEGN**	➩**Acronym** for United Nations Group of Experts on Geographical Names.
359	**unvocalized**	See vocalization.
360	**unvowelled**	See vocalization.
361	**UTM grid**	Universal Transverse Mercator grid, a plane grid of ➩**rectangular coordinates** overprinted on maps to assist defining location. It covers the entire globe in 60 meridional zones with a width of 6 degrees longitude each, these zones being numbered 1 - 60 from the International Date Line eastwards.
362	**variant character**	See character, variant.
363	**variant name**	See allonym.
364	**vector mode**	In a computer, storage and display of graphic information (points, lines, polygons) with the aid of points defined and addressed by their (usually rectangular) coordinates. Complementary term: ➩**raster mode**.
365	**vehicular language**	See language, vehicular.
366	**vernacular**	➩**Language** or ➩**dialect** native to a region, as distinct from the ➩**standard language**.
367	**vocabulary**	(a) List of words of a language. (b) Repertory of words of a particular individual. See also ➩**lexicon**.
368	**vocalization**	The inclusion or insertion of ➩**vowel markers** in an item or a text written in ➩**defective alphabetic script** such as in Arabic or Hebrew. Excepting instructory texts, only sacred texts and difficult or foreign words such as ➩**toponyms** are usually vocalized in print. Examples: 'Alī -عَلِي (vocalized) as against علي (unvocalized); Carmel - כַּרְמֶל (vocalized) as against כרמל (unvocalized).
369	**vocalized**	See vocalization.
370	**vowel**	One of the two main classes of speech sounds (which also includes ➩**diphthongs** and ➩**triphthongs**) in the articulation of which the breath channel is not blocked and not restricted so as to cause friction. A vowel is the most prominent part in a ➩syllable. Examples: /a/, /e/, /i/, /o/, /u/. Complementary term: ➩**consonant**.
371	**vowel letter**	See letter, vowel.
372	**vowel marker**	See marker, vowel.

373	vowel point	See vowel marker.
374	vowelled	See vocalization.
375	writing system	Method of representing the elements of **=phonology** and **=morphology** of a language by a set of graphic symbols which make up an **=alphabet**, a **=syllabary** or a **=logographic lexicon**, respectively for an **=alphabetic**, **=syllabic** or **=logographic writing system**. A writing system is composed of **=scripts**.

UNITED
NATIONS

E

Economic and Social Council

Distr.
LIMITED

E/CONF.91/L.14
10 November 1997

ENGLISH ONLY

SEVENTH UNITED NATIONS CONFERENCE
ON THE STANDARDIZATION OF
GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 9 of the provisional agenda*

COMMEMORATING THE THIRTIETH ANNIVERSARY OF THE FIRST UNITED NATIONS CONFERENCE ON THE STANDARDIZATION OF GEOGRAPHICAL NAMES

Ptolemy - the first UNGEGN toponymist

Paper submitted by Israel**

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* E/CONF.91/1.

** Prepared by N. Kadmon, Emeritus Professor of Cartography, Department of Geography, The Hebrew University of Jerusalem.

97-33653 (E) 011297 081297

Introduction

We are approaching the end of the second millenium. Let us go back to the beginning of the first, and even before that, to a time when Greek Alexandria was the cultural capital of the world. The present paper will build a bridge between antiquity and the present. But chiefly it will deal with conditions and developments within a shorter span of time, and even with the work of a single person – Klaudios Ptolemaios, or Ptolemy, as he is usually called in English.

I wish to stress from the outset that when using the word 'world' in this context, reference is made to the so-called western world; East Asia had its own centres of culture and learning, which are often neglected by historians in the West, mainly because of a lack of information. But this lack of knowledge seems to be mutual.

Definition of an Expert on Geographical Names

What constitutes a U.N. Expert on Geographical Names? He - or she - should, of course, be a good toponymist, i.e. a person dealing proficiently with geographical names and their standardization. Experience in 'active' geography would be expected, as well as a knowledge of linguistics and an interest in history; and a very important component in his or her training would be a solid background in cartography. Furthermore, administrative experience would be of value, especially in the handling of both data and people. And why all these qualifications? Because a member of UNGEGN is required to do a multi-facetted job. He (and, to make this presentation gender-independent, the 'she' will henceforth be implied) must treat and standardize toponyms. This term is derived from the Greek word τόπος, *topos*, a place, and a place in this connection is, of course, identical with a geographical place, at least if we are considering planet Earth. The second constituent of the term, *onyma*, ὄνυμα, also onoma, is a name. Here we enter the realm of linguistics, the study of language – but this has a much greater impact than merely furnishing this technical term. So let us open this discourse by briefly reviewing the qualifications of a model UNGEGN member in these different fields, and then examine whether and to what extent they applied to Ptolemy – the subject of our paper.

Geographical knowledge comes handy when one has to take into consideration the physical and human conditions under which a name is born, or exists, or changes. Names in southern Africa have to be considered differently from those in the constituent parts of the Commonwealth of Independent Countries, formerly the USSR, or from names which evolve in New Zealand.

Linguistics and phonetics must be applied in such a wide range of conditions and situations that it is difficult to ennumerate them all. Let us just consider the problems encountered in the transformation of geographical names from one language into another through translation and by exonymization (we shall return to this term later); or in the conversion from one script or writing system into another via phonetic and often popular transcription or more "scientific" and reversible transliteration. A particular

case here is romanization: the conversion of the graphic symbols of a "source" script into Roman characters. The source script may be in one of the three basic writing systems: logographic such as Chinese and Japanese Kanji; syllabic such as Amharic, Japanese Kana and Eskimo Inuktitut; or alphabetic e.g. Cyrillic and Greek, or Arabic, Hebrew and Persian. The latter three are classified under the label "defective", because in writing them one can omit the vowels so that they can be written with consonants only, or nearly only, and no harm done. And there is also the case of Korean, which is composed of alphabetic letters arranged graphically in syllabic units. Of course there are many others.

A sense of history is of importance because many geographical names resemble living organisms: they are born, but often do not remain constant and, through time, change in form, whether spoken, written or both. In the end some of them die, but if they are lucky they may even be resurrected – as are many biblical place names in present-day Israel. In order to be able to select one particular name for a given topographic feature from among a number of existing ones, some of them historical or traditional, others perhaps in simultaneous and contemporary use, all the above qualifications must be brought to bear when toponymic considerations are applied in order to decide which name or names should be regarded as standardized or even official. Perhaps an order of precedence must be established, just like among people of different rank, social status or income! This is a situation found in some multilingual countries such as Belgium, Switzerland and South Africa.

Furthermore, geographical names are no aspatial objects: they exist in four-dimensional space. Each named feature on Earth has three geometrical coordinates and one of time. The time coordinate is simply the date (or the period) when a name is, or was, in use. The geometrical coordinates (i.e. those measured on the surface of γῆ, gé – the Earth in Greek – can be ordinary geographical ones of latitude and longitude, or the X-Y coordinates of a plane-rectangular framework such as the UTM grid or any other national or local coordinate net. To these must be added elevation, i.e. height referred to mean sea level. An understanding of the basic concepts of geodesy is thus required.

Why was cartography mentioned as a further requirement? Cartography, from the Greek χάρτης, chartis, a sheet of paper, is the science, technology and art of geographical maps. This interdisciplinary discipline extends today from collecting material in the form of geographically-referenced data – including terrestrial surveying, aerial photography and remote sensing from artificial satellites, as well as gathering thematic information on a multitude of topics – through editing and graphic designing, to the display of these data (whether by manual or by computerized methods) in the form of visible maps (or tactile ones, for blind people). Furthermore, cartography covers research into the history of maps and mapping. This definition is not identical with the one adopted by the International Cartographic Association (of which I was a formulating member), but it represents its spirit.
Geographical names can be stored in different ways and on different media, the most important and prevalent ones being name lists such as name indexes and gazetteers (this is "biblio-graphic" storage, whether printed or saved on a digital computer medium) – and maps. The latter form, "carto-graphic" storage, has the advantage that the placement of a name in a map is analogous (at least in two dimensions, X and Y, or latitude and longitude) to the location of the respective geographical feature on the globe. A name printed in a map can, even by the form in which it is presented in the map – font (i.e. typeface and size), capitalization, colour, direction, curveosity and spacing – impart to the reader a wealth of information about the geographical item represented by the name. The toponymist inserting a name in a map must be conversant with the relevant cartographic procedures and methods in order to correctly encode this information graphically and convey it to the map reader.

So toponymy – the theory and practice of dealing with geographical names, including their standardization, is an interdisciplinary topic. If one takes a closer look at it one finds that it covers many cultural fields such as literature, politics and even music. But chiefly it involves – directly or indirectly – the science of location, because unlike any other proper noun, whether of a thing or a person – a toponym or

geographical name is bound to a fixed place on Earth or on a planet or natural satellite. This is why onomastics, the science of names in general, regards toponymy as one of its sub-disciplines [1].

The Scientific Background

After this rather lengthy introduction, let us go back in mind to antiquity. In the last pre-Christian centuries Alexandria in Egypt gradually inherited from Greece the position of leading cultural metropolis. And although it lay on the other side of the Mediterranean Sea, at the mouth of the westernmost arm of the Nile delta, it had also inherited the Greek language. No wonder; after all it had been founded by Alexander the Great – to serve both as a Greek cultural centre in Egypt and as a naval base. One of the city's most important institutions, if not the preeminent one, was the *museon*, the seat of the muses or rather that of their dedicated followers – the philosophers, historians, astronomers, geometers, mathematicians and other humanists and scientists. Foremost in this research institute, the *museon*, was the library, which in time became the greatest and mostextensive in the world until it was burnt down during the civil war in the third century. Annexed to the library were studies and working rooms where the selected fortunate scholars could conduct their studies and writing. Among them were well-known figures such as Euklides, Eratosthenes, Hipparchus, Poseidonius and many others. On some of them we now have to focus our review.

Alexandria was also a world centre of learning of different religions. It is said that St. Mark made his first convert to Christianity there in ca.AD 45. Our own Bible, the Old Testament, was translated there from Hebrew into Greek as the Septuaginta, called thus after the 70 Jewish scholars who, each in his isolated cell, performed the translations – all identical.

The Scientific Background

Already in the third century BC Eratosthenes of Alexandria had made an unprecedented calculation for the circumference of the Earth which had a profound impact on the understanding of cosmology and geography. He arrived at a value of some 250,000 stadia or some 45,000 km. Taking into account the primitive measuring instruments for distances and angles in his time, this was a surprisingly accurate result. Today we know that Eratosthenes was lucky; some of his errors were distributive and cancelled each other out. He also demanded that positions on the Earth be measurable and fixed. Hipparchus, in the second century BC, proposed that such locations be determined by astronomical observations, and suggested a prime or zero meridian in the Fortunatae insulae, today's Islas Canarias or Canary Islands, regarded by the Greeks as the westernmost end of the known Earth.

Some 100 years later Poseidonius who lived between approximately 135 and 50 BC also calculated the size of the Earth by a different method, trying to improve upon his predecessor's result. However, he arrived at a value of some 180,000 stadia or about 32,400 km only which, as we know today, was much too small. The impact of this second measurement on Ptolemy's work in geography and on the history of geographical discoveries will be mentioned later.

Into this learned atmosphere came Ptolemy. While we know much about his work, most of which has been preserved to this day, we know very little about his person. It is probably true to say that his activity as a collector, compiler and editor was of even greater significance than his activity as an originator. But this might lead to underestimating his wide-ranging talents. I wish to evaluate some of his work and its results without going too deeply into the controversial question of what was really his own contribution and what was influenced by him and probably – or at least perhaps – performed by others. There are so many editions of his work; in many cases if not in most the later editor added some of his own ideas or updated information, whether correct or wrong, and so a brief paper cannot cover them all. I shall simply try to summarize, and stress what seems to me, as a cartographer and toponymist,

as the most important aspects of his wide-ranging work which was one of the most notable and influential ever to be performed. So before describing Ptolemy's work in geography, cartography and toponymy, I must devote some space to his achievements in other spheres of science, mainly those that have a direct bearing on his accomplishments in the earth sciences.

Ptolemy's greatest acclaim to fame was his work in astronomy which came to be known both in the East and in the West as the Almagest. But I will not further describe this masterpiece. Suffice it to say that astronomy has a strong bearing on the science of location which lies at the base of cartography.

Ptolemy was a mathematician, well trained in both branches of contemporary mathematical science, namely geometry and arithmetic. Here he certainly did important original work, as demonstrated in his book 'Analemma', which was written chiefly as a guide to constructing sun-dials. In it he treated the projection of three-dimensional bodies, chiefly points on the celestial sphere, onto three planes perpendicular to each other. This, in effect, was useful also in his geographical studies, because points on the terrestrial sphere, the surface of the Earth, are geometrically analogous to those on the imaginary heavenly globe – if we disregard the irregularity of the Earth's surface, that is, the relief of mountains and valleys. In fact, it is the basis of cartographic projections which, after all, are also based on this restrictive assumption. Altitudes are then added onto the plane projection. This latter step was adopted, also in antiquity, in Ptolemy's work, in the forms of names of mountains and valleys. So here we see the importance of geographical names in depicting the physical landscape and its surface relief. Only about a millenium and a half later surface relief was represented, or rather elaborated, by numbers – the two modes, one verbal and one numerical, being non-terrain analogous and inconsistent with the graphic analogous depiction by plane projections. Contour lines used for showing relief were again conceived somewhat later.

In another work, the 'Planisphaerium', he dealt with the projections of three-dimensional bodies onto a plane, using as a focal point an extreme point of the body. Applied to the graphic representation of the Earth, this is the Stereographic projection, usually centred on the South or the North Pole. It seems that this method had already been known before the time of Ptolemy, but it was perfected and formalized by him. The Stereographic projection is still in widespread use today, especially for the circumpolar regions of the Arctic and the Antarctic. And not only is it used in small-scale atlas maps; it serves as the complement to the well-known UTM or Universal Transverse Mercator Projection for the polar areas where the cylindrical transverse UTM projection is impractical.

Ptolemy also did work in physics. Hipparchus in the 2nd century BC had demanded that location on Earth be established by astronomical observations. Ptolemy wrote a five-part work on optics, the 'Optica', in which he treated, for the first time, not only the general problem of the refraction of light on passing from one medium into another, but of refraction of the light from stars at different altitudes. This was, and still is, of great importance in astronomical observations such as those needed for determining the position of points on earth – both in 'static' cartography and in 'dynamic' navigation. Only lately have satellite-based global positioning systems (GPS) made the determination of location independent of optical observations.

The *Geographia*

I now come to the second great and extensive work on which Ptolemy's fame rests, second in importance only to the Almagest, and it, too, had far-reaching implications. This is the 'Geographiki Yphigisis' or 'Guide to the description of the Earth', which became later known simply as the 'Geographia', and later still as the 'Cosmographia'. Alexandrine science had accepted the Greek image of a spherical Earth, but had still to struggle with the three question of (a) its extent, or rather that of its populated regions; (b) its graphic representation on a plane surface; and (c) the placement of thousands of geographical

names. In other words, the construction of maps had to be solved. In the *Geographia*, Ptolemy adressed all three issues.

Some time before him, Marinus of Tyre, also working in Alexandria, and being aware that astronomical observations were in many instances crude, imprecise and even outright wrong especially as regards longitude, asked that map makers collect their base material from travellers such as seamen and traders, and not necessarily in astronomical terms. Ptolemy was critical of Marinus, but used both types of sources. Some geographical names and other data provided by travellers are unidentifiable today. This does not necessarily imply that they were fictitious: in many cases they had been distorted by Ptolemy's informants. In this context one is reminded of another famous book, namely Antoine de St. Exupéry's *The Little Prince* [2]. There we find a pompous geographer declaring that in writing his books he never leaves his desk but relies on informers. However, these must be reputable people, because if, for example, they are drinkers, they might report two mountains where there is only one!

In the 14th and 15th century, under the pressure of the Muslim Ottomans, an emigration wave from Byzantium to Italy resulted, with Greek manuscripts constituting an important export commodity. There are various accounts of how and when the *Geographia* reached Italy where it was translated into Latin, and much has been written on this subject. But while there is an extensive literature concerning the way the *Geographia* travelled from Byzantium to Italy, there exists no reference on how the Greek original had travelled from its birthplace in Alexandria to Byzantium (where the Arabs copied and translated it in the early 9th century).

In the translation, the name 'Geographia' in the title of the work was changed to 'Cosmographia'. Jacopo Angelo, one of the original translators, explained this change by saying that the Roman Plinius (Plini) called works describing the Earth by the Greek term cosmographia, and their authors cosmographers. In time the work became known by both names – the Geographia or Cosmographia of Ptolemy. I shall refer to it as the *Geographia*.

One can distinguish between two distinct parts of the *Geographia* as it is known to us, namely the text, originally in Greek, and the maps. Whereas the Greek text (whether the true original one, or one somewhat modified) was preserved and brought from Byzantium to Italy, being translated there into Latin – this text was not accompanied by original maps. Any maps which Ptolemy himself may have drawn were lost. We shall presently see how they were reconstructed during the Renaissance purely with the help of geographical names, and then reproduced continuously with geographical improvements (which today one would call updating), until about 1730.

The first printed edition with a definite date was produced in 1475 in Vicenza (Italy), and had only the text and not the maps. There are two theories about how all editions of the *Geographia* since 1477 had maps. One theory holds that there had been in existence in the 14th-15th century a prototype map, or rather a series of prototype maps, copied from an original which was lost in antiquity. The other postulates a reconstruction of the maps in the late Middle Ages from Ptolemy's original data by a method which will be described below. At any rate, from 1477 all printed editions included maps, in two versions: the A-version with one world map and 26 regional maps, and the B-version with 64, i.e. with many later additions.

Three Aspects of Ptolemy's Geographical work

I recognize three aspects of Ptolemy's integrative work as reflected in the *Geographia*: the geographical, the cartographic and the toponymic. Before him there had been a separation or division between verbal text describing geographical features on the one hand, including all geographical names, and formalized

or symbolized graphics, that is to say maps, on the other. The writings of Herodotus and Thukydides, for example, can illustrate this.

So first: Ptolemy's work as a geographer. In evaluating this we must exercise some care. We do not know much, if anything at all, about his travels. Being librarian at Alexandria he was, so to speak, an armchair geographer. This is not at all meant to detract from the merit and significance of his achievements. As mentioned before, he relied chiefly on geographical information supplied to him by others. That most of his informants (some of whom must have lived before his time) were reliable can be seen by just looking at the information contained in the *Geographia*, and especially at the maps which were based on it and added later. In his introduction to the *Geographia*, and also in the name lists, he makes a distinction based on the reliability of the position given for his data, dividing them in this respect into two categories. The first includes places well-known and well-documented, whereas the second has places of secondary importance. The geographical coordinates for these were, apparently, not measured locally by astronomical observation, but taken from their location in the maps. There is, quite naturally, a sort of radial or excentric decay function in the maps: the farther one gets from the heartland of western civilization – southern Europe, northern Africa and western Asia, the lower the accuracy of the maps if compared with the hindsight of our present-day knowledge. Here one can see one difference between geography and astronomy. You can observe most of the visible heavens sitting in a chair and watching the stars go by, at least for one hemisphere. Not so in geography; here one has either to travel, or, if one does not, have reliable sources who do. This was the distinction between St. Exupéry's static geographer and the interstellar travelling Little Prince. We have no idea who Ptolemy's informants were, but, as I said, on the whole they were not drinkers.

How can one judge the accuracy and reliability of Ptolemy's maps if they are missing? Here, a few words must be said about the composition of the text of the *Geographia*. It consisted of 8 parts or books. In Book I, with 24 chapters, Ptolemy provides his definition of geography, methods of collecting data and their evaluation, followed by a detailed critique of the map-making methods proposed by Marinus of Tyre and finally his own methods of portraying the Earth on a globe and on a plane surface. The latter are today known as map projections.

Eight Thousand Geographical Names

Books II to VII of the *Geographia* include a list of some 8,100 locations around the known or inhabited world. It must be said that a large part of this world was based on conjecture or even imagination. Thus, in the world map, attributed by some writers to Agathodaemon of Alexandria, Africa was connected to East Asia approximately along the equator by a region carrying in later Renaissance editions the Latin inscription 'Terra incognita secundum Ptolemaeum': unknown land, according to Ptolemy.

But it is this extensive list of locations which enabled two tasks to be performed. Firstly, it led to the reconstruction of his maps in the 15th century, as mentioned above. And secondly it enables one to evaluate the accuracy of the information on which he based his work. Of course, for both these tasks to be performed, a geographical framework had to be devised in which the positions could be quantitatively defined. And this framework too was provided by Ptolemy. This framework was the geographical graticule, the name given to the net of imaginary parallels of latitude and the meridians of longitude. Today we measure both latitude and longitude in terms of angles measured from the centre of the Earth– northwards and southwards from the intrinsical or natural line of the equator for latitude, and westwards and eastwards from an arbitrary meridian for longitude. But Ptolemy at least at first used for his latitude of a point so-called solstitial hours, that is to say, the number of hours of daylight on the longest day of the year at the respective point. This could be measured quite accurately, as could angular measure which replaced it already in the name list of the *Geographia*. and is used still today. But determining longitude proved (indeed until quite recently) to be a much more difficult undertaking. Ptolemy, again at first, used the

distance east or west from a base or prime meridian through Alexandria, measured in hours, with 15 degrees to one hour. In the maps this was later replaced by angular measure from the meridian through the westernmost point of the Fortunate Isles, today's Islas Canarias. Book VIII includes a list of important locations in the maps, each accompanied by its latitude in solstitial hours and its longitudinal distance from Alexandria, also in hours. Longitude was difficult to establish, because one must know the precise time difference between the point to be measured and the prime meridian and thus two clocks are required, one at least a reliable and portable clock. Only Harrison's chronometer provided, in the 18th century, a reasonable solution to the problem. Later, radio signals replaced the portable clock. And only recently have GPS methods freed us from the need for clocks.

Ptolemy based his work in cartography and toponymy on the much too small Earth circumference of Poseidonius and Marinus, and not on the earlier but much more accurate value obtained by Eratosthenes. This resulted in his 'metric' values of a degree of longitude (Earth circumference divided by 360) being too small. Also, he accepted an exaggerated length of the Mediterranean Sea – some 60 degrees of longitude instead of some 40 degrees in reality. Moreover, he assigned to Asia a too large West-to-East extension. And this had an interesting sequel some 1350 years later. Columbus, in the late 15th century, claimed that the westward distance by sea from Spain to to Cathay, China, was less than that by the eastward overland route taken for example by Marco Polo. He based this claim on Ptolemy's data of a smaller-than-real Earth and a greater-than-real West-to-East extension of Asia. And when he finally sailed westwards in 1492 and landed on the Caribbean island of Santo Domingo, he assumed that he had reached India. This is the reason that these islands are called the West Indies to the present day, and most endemic peoples of America, from North to South, are popularly called Indians.

Ptolemy the Cartographer

Now we come to the great Alexandrine's role as a cartographer and must return for a moment to the definition of cartography. As part of this definition it was mentioned that cartography includes the collecting of geographically-referenced data, that is, data with quantitative coordinates and not only names. Furthermore it entails editing, graphic designing the map and, of course, displaying the data. Viewed in this light, we recognize that Ptolemy's work in geography would today be regarded as topographic cartography (not as thematic mapping), and him as being a cartographer. So if we wish to appraise Ptolemy's work in cartography we can safely say that we have already covered very much of it: collecting data, designing a framework for presenting the data (the graticule of parallels and meridians) and inserting the data in this framework in the form of lists. Two important aspects still had to be dealt with. One was the major problem of cartographic projections, a projection being defined as a method of transferring geographical locations from the spherical Earth to the flat sheet of paper. The other was how, in practice, the map was to be made. He addressed them both in Book I of the *Geographia*, but we shall not deal with them in the present context. Suffice it to say that Book I provides instruction in constructing two map projections. One was a kind of composite conic projection, covering the tropical, subtropical, temperate and northern parts of the Earth, and this was combined in the South along the equator with a 'skirt' in the form of a subsidiary projection which even today has no name. It is interesting to note that until quite recently this 'seamless' combining of two projections has hardly been used; but a few years ago Canada resorted to one. The second projection shown in the *Geographia* is a beautiful and ingenious modification of the one just described – modified so that the meridians are curved lines which, if extended, would meet at the North Pole. Both projections had standard parallels in addition to the equator.

The second problem related to the graphic representation of the Earth in a plane as recognized by Ptolemy concerned the division of the world map into separate sheets of relatively large scale and greater detail compared with the world map. Ptolemy, who addressed this problem in Book VIII, was the first person known to have produced what we now call an atlas, that is, a collection of maps of uniform size, bound together in book form, but differing widely in map scale. But the name 'atlas' for a book of maps was

first used by Gerardus Mercator in the middle of the 16th century. The maps of the so-called *Atlas of Islam* in the 10th and 11th centuries were based on a similar system, as were Idrisi's 70 map sheets in the 12th – but without a mathematical framework, i.e. a map projection.

All early editions of the *Geographia*, namely the A-versions, had, in addition to the world map, 26 regional maps divided as follows: 10 maps of Europe, 4 of Africa and 12 of Asia. Ptolemy described his method of dividing the œcoumene into continents, and these he divided into map sheets – just as we do today. To these 26 'traditional' maps were later added a number of so-called modern maps, 'tabulae modernae' in Latin, originating not in antiquity but in the late 15th and 16th centuries. These 'non-traditional' maps usually differed from the old maps in contents and partly in style. Thus, the map of the Holy Land was copied from a map made by Pietro Vesconte for Marino Sanudo's book *Liber secretorum fidelium crucis* of 1321. It was oriented to the East, whereas Ptolemy had North at the top of his maps, as we have today in most cases. However, since the tabulae modernae were not the work of our ancient cartographer, I will not treat them here further.

Toponymy – with some examples from the Holy Land

We now come finally to the toponymic part of Ptolemy's work as reflected in the great list of names in Books II to VIII of the *Geographia*. In the nearly 8,100 listings Ptolemy follows mostly Latin names; after all, nearly the entire œcoumene was at one time or the other conquered by the Romans or ruled by them, and even he himself lived in Egypt under Roman domination. So he had to translate, transcribe and transliterate – typical activities of the toponymist. Many of the names have changed through the centuries – and millenia – since his time; but many others have hardly changed. A considerable number of what we now regard as errors have been introduced by four agents, namely the informants who supplied Ptolemy with the names; Ptolemy himself; the translators; and perhaps even more, the copyists of the work. In the ensuing, I will not follow specific or particular editions. Sometimes double names appear, even in the same edition, such as Brittanicae Insulae in the list and Albionis Insulae in the map, which in some editions are Alvion and Insulae Prettanicae. On a recent visit to the Greek islands of the Northern Aegean Sea I toured the islands of Samothraki and Limnos. The *Geographia* lists them as Samartaca and Lempnos. The first is the 'Samos of Thrakia', from where Poseidon watched the Troian War. So the form Samartaca is clearly distorted. Limnos derives from limne, lake or pool, and the Ptolemaian 'p' is superfluous. Who introduced the errors? Above we listed possible sources. A further inconsistency occurs where names in the world map differ from those in the regional maps. Thus, in the text Byzantium is called by this name in the regional map of Thrakia, whereas in the world map it appears under the much later name Konstantinoupolis. This must have originated when the copyist in the late Middle Ages introduced his own *quasi* updated knowledge. The same is true of the name Athos mons in the map: the Monasterial Republic of Mount Athos, where I was invited to view one of the oldest manuscripts of the *Geographia*, dates from the 10th century.

It has been said that Ptolemy's Latin was not quite perfect. Dilke writes in 1987 for example that it may be understandable that instead of the place name Alba Fucens in Italy, Ptolemy wrote in the name list Alpha Bucens, where Bucens has no meaning, while Alba is white in Latin and fucens may have been connected with colouring or dyeing. Dilke mentions that the most glaring mistake in Latin seems to have been the name of a place in Germany which Ptolemy called Siatutanda. Tacitus, in referring to a certain Germanic tribe, wrote 'ad sua tutanda', i.e. for their protection. Ptolemy apparently used this source and named a place in Germany Siatutanda. Still, the name list is an outstanding achievement.

Israel and the land on both sides of the river Jordan have been the subject of more maps and a greater continuity of mapping than any other country in the world, owing to their being the Holy Land to both Judaism and Christianity. Because of this continuity of cartographic representation a number of biblical place names in this country will be mentioned which appear in Ptolemy's *Geographia*, where one finds

them in Book V in their exonymic Greek or Roman form. Only a few of these forms and the original biblical ones will be listed, together with the names in use today, omitting some intermediate forms.

Caesarea Stratonis is still called Caesarea.
Ioppa was biblical Hebrew Yafo and is today Jaffa, Arabic Yāfā and in Hebrew again Yafo.
Iamnia stands for Hebrew Yavneh.
Azotus is Hebrew Ashdod.
Ascalon is Ashqelon.
Jordanus is the River Jordan.
Asphaltidis lacus is the Dead Sea, Yam haMelah in Hebrew, i.e. Salt Sea.
Tiberiadis lacus is the Lake of Galilee, Yam Kinneret in Hebrew and often still called Lake Tiberias.
Sapphora was Roman Sephoris and Hebrew Zippori.
Lydda is the Hebrew Lod and remained Lydda in Arabic.
Betogabri is Hebrew Bet Guvrin, became Arabic Beit Jibrīn and reverted to the Hebrew form.
Emmaus or Emmautha is still Emmaus and also Latrun.
Guphna is biblical Gofna but does not exist anymore.
Engada is the Hebrew En-Gedi.
And finally, Hierosolima [que nunc dicitur (Aelia) Capitolia] is Jerusalem, Hebrew Yerushalayim.

The first (Ptolemaic) name in each case is Greco-Roman. The Hebrew names mentioned are today's standardized and official ones for these places in Israel. They are all, without exception, exactly the same as found in the Bible which was, of course, originally written in Hebrew.

The First-Ever Geographical Gazetteer

One of the important functions of today's UNGEGN is encouraging and supporting the production of geographical gazetteers. According to the *Glossary of Toponymic Terminology* [3] a gazetteer is defined as a "list of toponyms in alphabetical or other sequential order, with an indication of their location and preferably including variant names, type of topographic feature and other defining or descriptive information". This is, of course, a modern definition listing present-day requirements. It may therefore come as a surprise how nearly Ptolemy anticipated such needs.

The ordered list of some 8,100 geographical names which constitutes Books II to VII of the *Geographia* is the first-ever example of a true geographical gazetteer. How is it organized, and which items of information – or, in modern terms, which data fields – does it contain?

Since Ptolemy assumed that the reader would look for a name within a certain defined geographical area, he arranged his list not alphabetically but in another "sequential order" (see definition above), with the separate maps constituting the first level of sorting. The maps comprising the atlas (not so labelled by Ptolemy) were appended to the verbal and tabular text of the *Geographia* and in the A-version, which must have been the one originally produced by Ptolemy, included 10 maps of Europe, 4 of Africa and 12 of Asia, preceded by the world map. The name list starts in Book II with "Prima Evropae tabula" (first map of Europe). Within each map section of the list, the names are arranged according to geographical areas or political units as a second level of sorting. Thus, in Liber (Book) II, Tabula prima Evropae, Caput (Chapter) III: Albionis Insulae Brittaniae situs.

What came first – the list or the maps? As mentioned above, the original maps were lost, but were perhaps reconstructed a thousand years later with or without the help of the name list in the surviving Books II to VII of the *Geographia*. The original maps, too, must have been produced on the basis of name lists or other maps. Only the order of appearance of the names in the list forming Books II to VII was certainly performed on the basis of Ptolemy's (original) maps.

And now we must turn to the contents of the name list. Primarily, which types of geographical features does it contain? The predominant items are, quite naturally, inhabited places: cities, towns and even villages. Further we find names of physical geographical regions as well as of political divisions as well as of peoples and tribes, often constituting the headings of "paragraphs" as explained above. Very sensibly, physiographic point features are included, such as the mouths of rivers and river confluences, heads of promontories and other geographically identifiable objects. Mountains are also found in the list, as are lakes, usually denoted by a representative point within their circumference. The list is, therefore, much more than just a "place names gazetteer" which, according to the *Glossary of Toponymic Terminology*, lists only populated places.

The second issue to be examined in connection with the contents of the name list is again one in which Ptolemy preceded our work in UNGEGN today. This concerns the items of information appended to each entry in the name list.

Naturally, the main item is the geographical name itself. In the original this appeared in Greek – either as a Greek exonym or in conversion from the source language or script into Greek writing. This proves the fact that Ptolemy must have been an expert in the conversion of geographical names, too. If the original name conveyed to him was in a script other than Greek, it had to be transliterated; we might call this operation *toponymic hellenization* or perhaps *grecization*, the counterpart of today's romanization. In many cases, if not in most, this was not enough: Greek exonyms had to be substituted for endonyms. Within the rather sketchy boundaries of the empire of Alexander the Great this was not too difficult. Of course, a great number of geographical names Ptolemy extracted from existing sources; others he obtained from travellers and other informants. But even for these he had to verify the Greek spelling. When the *Geographia* was translated into Latin over a thousand years later the names in the list, too, were converted, not only from the Greek alphabet into the Roman one but also from Greek or hellenized name forms into Latin ones.

The second item of information in the list was the location of the referenced object. And it is here that Ptolemy really did pioneering work. We know of numerous lists of geographical names in antiquity more or less strictly organized or arranged. Thus, a very detailed list of Hebrew names of populated places and some physiographic features delineating the borders of ancient Israel and its division into tribal areas is included in the Old Testament in the Book of Joshua, chapters 15 to 17, where the names can be found today in amy Bible. A similar but much more extensive and more structured list of 983 biblical place names was produced by Eusebius, Bishop of Caesarea, around the year 320 under the name *Onomasticon*, i.e. name list (the present writer named his modern-day gazetteer of Israel containing some 7,000 names *Toponomasticon* [4] in honour of Eusebius). Sources of names, albeit dispersed and unstructured, can be found even much earlier, e.g. in the Egyptian Tell el-Amarna tablets of the 15th cent. BC. But Ptolemy was the first to systematically indicate the location of his 8,100 names with the aid of coordinates – something we learned from him, and today regard as a normal requirement of any gazetteer.

These Ptolemaian coordinates are of interest. At first they were computed in hours, for both latitude and longitude. Latitude then, even as now, was much easier to fix than longitude. Today any youngster can determine approximate latitude at night just by measuring, or even estimating, the altitude of Polaris, the (North) Pole star in degrees above the horizon. For longitude one would need two clocks, one showing local time and the other the time at the prime meridian (today Greenwich) – or a clock and a radio signal, as was explained above. The recently introduced satellite-dependent global positioning systems (GPS) have simplified matters – if one has the appropriate instrument. Ptolemy at first expressed latitude in solstitial hours and longitude in hours East or West of the prime meridian through Alexandria, for several hundred places. In the name list and in the maps both coordinates are expressed in degrees, the former from the equator and the latter from the Fortunate Isles. The determination of longitude

was much less precise than that of latitude, and one realizes this immediately one takes a look at a Ptolemaian map. Concerning the two different coordinate systems, even today we use different coordinate nets, such as the UTM (Universal Transverse Mercator) instead of, or side-by-side with, geocentric coordinates based on the 360 degrees or 400 grad system. While at least in the better known regions of the œcoumene such as the Mediterranean basin latitude values conform to a surprising degree to those we use today, longitude values are not only larger than present-day values by some 20 degrees because of Ptolemy's more westerly prime meridian, but because of his reliance on Posidonius' measure of the Earth's circumference.

It was probably the coordinates in Ptolemy's name list which enabled cartographers in the Renaissance to reconstruct the missing maps. In one of my courses at the Hebrew University of Jerusalem I ask my students to reconstruct the map of Israel only from the tabular data in the *Geographia*, as it might have been done in the past, i.e. just from the geographical names and their coordinates.

Summing up

If we permit ourselves to judge – or criticize – Ptolemy's work in toponymy (or in any other of the numerous spheres in which he was active and productive), we should remember that we do so with the benefit of hindsight. What should be done (and the present writer tries to do this) is to remember that all human achievements must be viewed in the light of their contemporary level of knowledge and technology. One cannot simply say "Here Ptolemy erred"; one must turn the statement into a question and ask "Could Ptolemy, in the light of existing possibilities, have arrived at a better solution?". The great Alexandrine Greek was confronted – basically – by the same limitations facing all toponymists and cartographers of all ages, including our own: he had to rely on "informants". After all, no living person is able to check on his own all geographical names in the world. So one has to find the best and most reliable sources available. This is something every toponymist under training is taught, and participants in UNGEGN training courses and seminars will remember it from their field exercises. Although it is known from the records of his astronomical observations that Ptolemy did travel, he was, as keeper of the great library at Alexandria, tied to his post much if not most of the time. While we are far from comparing the two, his problem was well illustrated by the Geographer in Antoine de St. Exupéry's book *The little Prince*.

So now we arrive at the summing up. We do not know whether a sense of history was among Ptolemy's qualifications, but at least he was acquainted with the history of his profession. We have demonstrated his competence in all other domains demanded of a U.N. toponymist. Although it is difficult, if not impossible, to distinguish with certainty between some aspects of Ptolemy's own work and that of others who either preceded or succeeded him, and in spite of many discrepancies between names in different editions of his work, and the fact that he must have relied heavily on external sources, he was a great innovator and originator in world geography, but particularly in cartography and toponymy. There can be no doubt about his being the author of a most innovative composition – original not so much in its content as in its form – an "atlas" with a gazetteer of geographical names. He was indeed the first 'quantitative' toponymist.

So if we expand the acronym UNGEGN into

"Un-Nationalistic Greek Expert on Geographical Names"

we finally justify the title of this paper. My presenting it here can be regarded as a token of my esteem and admiration for this illustrious scholar and scientist to whom I owe much of the basis of my profession.

Notes

[1] See also N. Kadmon, "Luxor or al-Uqsur – Skagerak, Skagerack or Skagerrak? The United Nations and the Standardization of Geographical Names". Onoma, Journal of the International Council of Onomastic Science, Vol. 32, 1994-95, p. 140.

[2] Antoine de Saint Exupéry, *Le Petit Prince*. Editions Gallimard, Paris, 1946.

[3] United Nations Group of Experts on Geographical Names, Working Group on Toponymic Terminology, *Glossary of Toponymic Terminology*, version 4.

[4] N. Kadmon, *Toponomasticon – Geographical Gazetteer of Israel*. Survey of Israel and "Carta". Jerusalem, 1994.

The author is Emeritus Professor of Cartography at the Hebrew University of Jerusalem, Israel.

Author's address (h):
36 Benjamin Mitudéla Street
IL-92306 Jerusalem, Israel.

UNITED
NATIONS

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Economic and Social Council

Distr.
LIMITED

E/CONF.91/L.15
11 November 1997

ENGLISH ONLY

SEVENTH UNITED NATIONS CONFERENCE
ON THE STANDARDIZATION OF
GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 4 of the provisional agenda*

REPORTS BY DIVISIONS AND GOVERNMENTS ON THE SITUATION IN THEIR REGIONS AND COUNTRIES AND ON THE PROGRESS MADE IN THE STANDARDIZATION OF GEOGRAPHICAL NAMES SINCE THE SIXTH CONFERENCE

Report of Finland

Paper submitted by Finland**

* E/CONF.91/1.

** Prepared by Sirkka Paikkala, Onomastic Planning and Guidance, Research Institute for the Languages of Finland, Helsinki, and Jorma Marttinen, National Land Survey of Finland, Helsinki.

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1 Field collection of place names

The collection of toponyms began in Finland at the end of the 19th century. The objective was to collect and file all names, both those referring to inhabited places and those referring to natural features. The collection process is systematic and involves interviewing the permanent inhabitants of each area. The collectors have linguistic backgrounds and special training in name collection. Handbooks for collectors were published in 1961 and 1965 (including guidelines concerning the linguistic standardization of names). The principles followed in the collection and standardization correspond to the recommendations issued at the first United Nations conference (Geneva 1967 Recommendation 4.B). Financing has been provided by the Finnish government and partly (for Sámi names) by the National Land Survey of Finland.

The purpose of collecting names and their office treatment is to serve the daily needs of name users, cartography, administration and research in the fields of onomastics, dialectology, history, folklore, etc.

From 1992 to 1996, the Finnish toponym collections increased by 104,000 file cards and the Sámi (Lappish) toponym collections by 840 cards. At present, the Finnish collection includes a total of 2,6 million names, the Swedish collection about 300,000 names, and the Sámi collection about 27,400 names. During the current year field work will be continued in some municipalities. In practice the Finnish collection has been nearly completed, because some kind of collections have been made in every region of the country. The Swedish collection was complete in 1986. The original file cards have been arranged alphabetically by municipalities, and copies have been arranged in a countrywide alphabetical collection. The Finnish and Sámi collections are located at the Research Institute for the Languages of Finland and the Swedish collections at the Swedish Literary Society of Finland.

Since 1994, the Universities of Helsinki and Tampere collaborate in collecting toponyms for a project on the perpetuation and change of place names. The goal of the project is to study how well the present archive collections correspond to present usage.

In order to complete the Topographic Database of the National Land Survey, the Sámi names on old maps have had to be respelled. There are three different Sámi languages in use in northernmost Lapland with differing orthographies.

2 National standardization

Official treatment of names

The Research Institute for the Languages of Finland is responsible for the office treatment of Finnish and Sámi names (the Language Planning Department) and also Swedish names (the Swedish Department). The work concentrates on (1) correcting names on published maps, (2) providing statements and recommendations about names of municipalities and other administative areas, cadastral villages, post offices and public buildings, and checking of proposals for names of roads in the municipalities, (3) organizing onomastic training for cartographers (since 1996), (4) acquiring and providing information about the spelling, pronunciation and inflection of domestic and foreign names In Finland, and (5) studying –

since 1996 – the need of a place-name law for Finland.

The Research Institute maintains a daily toll-free telephone line to answer name questions. More than 20 % of the questions received concern the correct usage of foreign names. Most enquiries come from the media, which receive the names from international news agencies. Other callers include authorities, officials, business people, translators, and travel agencies. The number of questions increased when Finland joined the European Union, as texts to be translated into Finnish contain many names even from outside the Union. In addition, the spelling, inflection, and planning of new domestic names (in three languages) frequently leads to questions. Since the beginning of 1996, the recommendations have been fed into an onomastic planning and guidance database.

Finnish maps are mainly produced by the National Land Survey of Finland which also maintains a Real Estate Register. Map names are checked in cooperation with the Reseach Institute. Since 1992, about 222,000 place names of the 1:20,000 map series have been revised for the Topographic Database. Of the 954 map sheets examined, 837 sheets had only Finnish names, 18 sheets had only Swedish names, 21 sheets had Finnish and Swedish names, and 78 sheets had Finnish and Sámi names. Field work has shown that in some parts of the country it might be desirable to pay more attention to leaving dialectal features in the names.

In the reorganization of the National Land Survey in 1991, the responsibility of data compilation for the Topographic Database was given to the 11 regional survey offices. At the same time, the organisation was given more freedom to operate on commercial terms.

The authorities with the right of decision on names

The authorities that deal with place names in Finland are subordinate to various ministries. Nowadays, many authorities function on a more commercial basis than previously, and there is no central organization in the country with final rights of decision. Separate units make decisions concerning names in postal addresses, state railways and municipalities. Only the municipalities are obliged to ask the Research Institute for a statement if they are changing their own name.

The law regarding the division of Finland into municipalities (fi ***kuntajakolaki***) was rewritten in 1990. This law gives the municipalities (fi ***kunta***, sv ***kommun***) the right to decide on their names and on their administrative form (rural or urban municipality). Formerly it was the Ministry of the Interior that had the right to determine these matters.

In the spring of 1996, the situation of the treatment of names was again discussed at the Research Institute. A working group was founded to determine whether or not a place-name law or ordinance was needed, and to make a recommendation as to what measures to take. One idea was to establish a permanent place-name committee to solve the most difficult name problems. In April 1997, the working group arranged a seminar with Norway and Estonia which already had place-name laws. The report of the working group was submitted to the Ministry of Education in October of 1997.

Names in postal addresses

Finnish postal addresses were standardized in 1971 with the introduction of a new national

system of postal codes. This system was presented by Finland Post Ltd both in Finland and abroad, and it was adopted by Zambia in 1990 and by Kenya in 1994. Finland Post Ltd has announced that the Research Institute for the Languages of Finland will be asked for an advisory opinion in the (re)naming of post offices.

Addresses in the countryside is a major ongoing naming project for the Finnish municipalities. Almost 70 % of 455 municipalities had named all their "inhabited" rural roads by the end of 1996. Responsibility for the planning of road and street names was handed over to the municipalities in 1988. The purpose was to create a comprehensive, clear, and consistent nationwide system of adresses for postal services, traffic, emergencies, etc. A prerequisite for such a network is the naming of roads. Many municipal plans for naming roads have been checked by the Research Institute for the Languages of Finland. This name planning is especially sensitive in bilingual municipalities. For instance, formerly it was common to translate traditional place names which were parts of road names, whereas today the tendency is to only translate the terms, such as street, road, way, etc.

The National Land Survey inserts road names in their digital Road Database. This process will combine both urban and rural addresses into a navigable geoinformation system. With 40 % of the municipalities covered in mid-1997, it can be predicted that the completed database will contain approximately 200,000-300,000 names.

Changes in administrative division

In 1992 the Council of State decided on a principle of standardizing the state division into administrative districts. During the 1990'ies the old functional-economical provinces became the base for the new division into provinces (*maakunta*). Since 1997, there have been 20 administrative provinces in Finland, and their borders are the basis of several other administrative district divisions. The administrative provinces are units for municipal government and they do not correspond to the old historical provinces. Even the regional division of the state has been modified to correspond to the division into provinces. In 1993 the division into regional plan districts was reformed, and in 1996 new jurisdictional districts were formed.

In 1997, the number of counties (fi *lääni*, sv *län*) was reduced from twelve to six, and 15 employment and economic centres were formed. All these changes have created a need for forging new names or recycling old ones. Sometimes old names have been successfully reused and new names created, but there have also been inconsistencies and conflicting views between different authorities. In October of 1997, some names for the new administrative provinces were yet to be ratified.

3 Toponymic databases

The creation of onomastic databases in digital form started in 1991. The Research Institute for the Languages of Finland is creating a databank of toponyms from the original field collections. About 10 % or 250,000 names will be computerized in the first phase. The project started in 1991, and by July 1997, **the Toponyms Databank** contained about 100,000 entries. Additionally, some of the new material collected in the field has been filed in computerized form.

Another database of the Research Institute consists of the names of inhabited places (municipalities and villages). This database, called **the Names of Inhabited Places in Finland**, contains about 21,000 entries and is not for public use. A gazetteer (*Alastarolla Ylistarossa*, 1990; new edition forthcoming) was based on it.

Completing **the Topographic Database** is the most important cartographic project in the National Land Survey of Finland. Begun in 1993, and consisting of the contents of the Basic Map (including place names), a series of topographic maps 1:20,000 (1st edition 1947–1977), which are converted into digital form, the project is designed to fulfill the need of basic geoinformation and to serve as a basis for new maps in scales from 1:5,000 to 1:50,000.

The Topographic Database will be completed at the beginning of the 21st century, but the place names have already been digitalized, and in 1998, after a quality check, they will form a database of names. All the names of the Basic Map have been checked by onomastic specialists during their revision in the 1970s and 1980s. The checking is continued as well in the Topographic Database compilation as mentioned in the previous chapter. Thus, **the Place Names Service Database** can be regarded as having official status.

The National Land Survey has also created a WorldWideWeb service called **The Citizen's MapSite**, where one can browse maps of Finland. A database of 30,000 names is used to choose a location from simple maps ranging from 1:50,000 to 1:8 million. Another service, **The Professional's MapSite**, offers more accurate maps and is available on a fee basis.

The Real Estate Register is maintained by the National Land Survey in cooperation with the urban municipalities of Finland. The Register's database was completed in 1994 and consists of approximately two million names. In addition to the names of municipalities and villages, the register contains the names of farmsteads and estates given by their owners during the survey act. No coordinate information is included in the register, but the georeference will be available in 1999 when the Cadastral Map is completed in digital form.

Road atlases are published in Finland by private companies such as Karttakeskus (Map Centre Ltd., the former printing office of the National Land Survey) or Valitut Palat (*Reader's Digest* of Finland). The usual scales are 1:200,000–1:400,000, and the atlases have a place-name index. Some data are available in digital form.

The Nordic Map Database is a joint Nordic 1:2 million scale digital product in CD form. It contains 5,000 place names and covers Denmark, the Faeroe Islands, Finland, Greenland, Iceland, Norway and Sweden. A more comprehensive database with 20,000 names in the first version is under preparation as a joint project between Nordic mapping agencies. The work is coordinated by the National Land Survey of Finland.

4 Exonyms

The Research Institute for the Languages of Finland began to establish a database of Finnish exonyms in 1994, a project that continued in 1995 and again in 1997. This database contains names that have been taken from the largest and most representative atlases published in Finland from 1960 to 1990. The preliminary database consists of about 9,000 exonyms (and exographs) containing approximately 7,000 features. A list of Finnish toponyms with Swedish

equivalents was prepared for the comprehensive Finnish–Swedish dictionary (*Suuri suomi–ruotsi–sanakirja / Stora finsk–svenska ordboken*, Helsinki 1997).

5 Courses and conferences

Academic studies of Finnish include linguistic field–work which may involve collecting toponyms.

Since 1996, the Research Institute has arranged onomastic training courses for workers of regional offices of the National Land Survey.

In April 1997, the United Nations Group of Experts on Geographical Names organized a toponymic training course in Riga where Finnish name specialists were among its lecturers. Later, Finnish participants attended as observers the second meeting of the Baltic Division of UNGEGN. In the spring of 1997, representatives of Finland participated in a meeting of the Nordic Division of UNGEGN in Oslo. The Finnish participants also attended a Nordic symposium on foreign place names.

In 1995, the 8th International Finno–Ugric Congress was held in Jyväskylä, Finland. Some contributions dealt with name planning and guidance.

6 Publications

The Research Institute for the Languages of Finland publishes bulletins in Finnish (*Kielikello*) and Swedish (*Språkbruk*). These publications also discuss name planning and give recommendations.

Literature on onomastic planning and research published in Finland in 1992—1997 (publications in the Sami language have been produced incollaboration between the Nordic Countries):

Books

Ainiala, Terhi (1997). *Muuttuva paikannimistö* [Changing place names, in Finnish, with English summary]. Helsinki: SKS. 272 pp. – This book examines how, why, and to what extent place names have changed, become obsolete or have been perpetuated over the past two centuries in two villages in Finland.

Hakulinen, Kerkko (1996). *Maailman paikannimet – oikeinkirjoitusopas* [Place names of the world – guide of orthography, in Finnish]. Helsinki: Otava. 2nd edition. 285 pp. – This book contains lists of Finnish termless exonyms, Finnish country names and Finnish names of Russian administrative areas, and discusses the problems connected with the translation of geographical terms in place names.

Laapotti, Marjukka (1994). *Lahden paikannimistö* [Place names of Lahti, in Finnish]. Lahti: Town Planning. 327 pp. – Introduction to the treatment and planning of place names in a city.

Leskinen, Heikki & Sándor Maticsák & Tõnu Seilenthal, eds. (1996). *Sessiones sectionum, Lexicologia & Onomastica.* The 8th International Finno–Ugric Congress, Pars V. Jyväskylä.

Närhi, Eeva Maria, ed. (1994). ***Maiden nimet kuudella kielellä*** [Country names in six languages). Helsinki: Painatuskeskus. 164 pp. – Country names in Finnish, Swedish, Sámi, English, French and German. The Finnish, Swedish and Sámi names are also available on Internet (http.//www.domlang.fi).

Paikkala, Sirkka, ed. (1993). ***Insjö–Esbo. Dess vattennamn, natur, historia och framtid*** [Lake District of Espoo: water names, history and future, in Swedish]. Espoo: City Planning Office. 128 pp.

Paikkala, Sirkka, ed. (1996). ***Saaristo–Espoo: nimistöä, luontoa, historiaa ja tulevaisuutta*** [Lake District of Espoo: on names, nature, history and future, in Finnish]. Espoo: City Planning Office. 163 pp. – Place names are discussed by Kurt Zilliacus and Ritva Liisa Pitkänen.

Paikkala, Sirkka & Ritva Liisa Pitkänen & Peter Slotte (1997). ***Paikannimet – yhteinen omaisuutemme: tarvitaanko Suomessa paikannimilakia?*** [Place names – our common property: does Finland need a place–name law? in Finnish]. 54 pp. – Unpublished discussion paper at the Research Institute for the Languages of Finland.

Pitkänen, Ritva Liisa & Kaija Mallat, eds. (1997). ***You name it: perspectives on onomastic research***. Helsinki: SKS. 297 pp. – Dedicated to Eero Kiviniemi, Professor of onomastics. Contains 30 articles by leading scholars of Europe, North America and Africa, e.g. on national and international standardization of geographical names.

Suomen Standardisoimisliitto (1993). ***Arabian kielen translitteraatio*** [Transliteration of Arabic characters]. Helsinki. 6 pp. – The ISO standard applied to Finnish.

– (1996). ***Kreikan kielen translitteraatio ja transkriptio*** [Transliteration and transcription of Greek characters]. 8 pp. – The ISO standard applied to Finnish.

– (1994). ***Maiden nimien tunnukset*** [Codes for the representation of names of countries]. 4th, revised edition. Helsinki. 46 pp. – The ISO standard applied to Finnish.

Viljamaa–Laakso, Marja (1992). ***Place Names in the Tapiola Cityscape***. Espoo: City Planning Office. 49 pp. – Discusses place name planning as part of city planning. Also available in Finnish and Swedish.

Zilliacus, Kurt (1994). ***Orter och namn i "Finska skären"*** [Places and names in the Finnish archipelago, in Swedish]. 152 pp. Lovisa: Föreningen Konstsamfundet.

Maps and atlases

Mathisen, Hans Ragnar & Samuli Aikio & Anders Henriksen, eds. (1996). *Sámi Atlas*. Tromsø: Romssavárdu. 67 pp. – World atlas for elementary schools in Northern Sámi with geographical and historical maps and a place name index. Maps by Liber Kartor Ab.

Tiekartasto Suomi [Road Atlas of Finland] *1:200 000–1:400 000.* (1997). 280 pp. Helsinki: Karttakeskus Oy. – Legends in Finnish, Swedish, English and German; with a place-name index.

Jaatinen, Martti, ed. (1991). *Karjalan kartat* [Maps of Karelia]. Tampere: Karjalan Liitto. 192 pp. – Pre-World War 2 maps 1:100,000 of that part of Karelia which Finland lost to the Soviet Union.

Maastokartta [topographic map series] *1:50 000.* Helsinki: National Land Survey of Finland. – 250 sheets published by the end of 1997, covering 65 % of the country. After 1993 the series is based on the topographic database.

Maastokartta [topographic map] *1:20 000.* Helsinki: National Land Survey of Finland. – A new series based on the topographic database. About 1,000 sheets published by the end of 1997, covering about 30 % of the country.

The most important digitalized maps published since 1992 have been mentioned under the chapter 3.

7 Addresses

Kotimaisten kielten tutkimuskeskus (KKTK)
(The Research Institute for the Languages of Finland, formerly The Finnish Research Centre for Domestic Languages)
Sörnäisten rantatie 25
FIN-00500 HELSINKI
(http://www.domlang.fi)

Maanmittauslaitos (MML)
(National Land Survey of Finland)
PL 84
FIN-00521 HELSINKI
(http://www.nls.fi)

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UNITED
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Economic and Social Council

Distr.
LIMITED

E/CONF.91/L.16
11 November 1997

ORIGINAL: ENGLISH

SEVENTH UNITED NATIONS CONFERENCE
ON THE STANDARDIZATION OF
GEOGRAPHICAL NAMES
New York, 13-22 January 1998
Item 5 (c) of the provisional agenda*

NATIONAL STANDARDIZATION: TREATMENT OF NAMES IN MULTILINGUAL AREAS

Translators and place names in Finland

Paper submitted by Finland**

* E/CONF.91/1.

** Prepared by Sirkka Paikkala, Onomastic Planning and Guidance, Research Institute for the Languages of Finland, Helsinki.

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Language legislation

Finland is officially a bilingual country. The status of the languages of Finland was defined in the Constitution of the new Republic of Finland on 17 July 1919. According to article 14 (1), Finnish and Swedish are the national languages of the country, and as such they have the status of official or State languages. The central principle of this language legislation is to establish the equality of the national languages. A national language is therefore regarded as the native language of the nation, as opposed to a "foreign language".

Finnish civil rights underwent a reform on 1 July 1995 and article 14 of the Constitution was also revised to reconfirm that the country is officially bilingual and that Finnish and Swedish are the national languages. Article 14 (3) further states that in addition to the Finnish and Swedish speakers, other language groups likewise have the right to maintain and develop their own culture. This statement also gives the Sámi people (the Lapps) the right to use their own language when dealing with officials (15.3.1991/516).

As far as languages are concerned, the general principles of the Finnish Constitution also form the basis of the Language Act (1.6.1922/148) and its changes. According to the Act, administrative and autonomous areas (municipalities, counties, courts of justice, dioceses etc.) are divided into monolingual Finnish or Swedish areas and bilingual areas in which the majority language is either Finnish or Swedish.

A municipality or other administrative or autonomous area covering one municipality is monolingual if its inhabitants all speak the same language or if the number of speakers of the second language is less than 8 per cent. An area is considered to be bilingual if the proportion of speakers of the second language is 8 per cent or at least 3,000. This area cannot be declared monolingual until the number of speakers of the second language has diminished to 6 per cent or less (10.1.1975/10).

According to the Language Act, all public notices and proclamations, announcements and other documents given by officials to the public have to be written in the local language in monolingual areas and in both languages in bilingual areas. The language legislation in Finland, and especially the proceedings in the official language aimed at the public, are based on the principle that the two language groups shall be treated equally. The only exception is the Autonomous Province of Åland, where Swedish is the only official language.

How to choose which place name to use

The language legislation of Finland makes no mention of the use of place names in languages other than Finnish or Swedish. Many monolingual administrative areas, such as municipalities, have an official name in both languages, and when drafting documents, one has to use the name in the language of the document. Problems may arise when it is necessary to use other languages - for instance, in brochures, reports and maps meant for international

use. If the same object has two official names and one wants to present both, one has to choose which to mention first. Another problem is that, due to the nature of the text, one may not want to repeat both names, and a question arises as to which would be most appropriate.

Recommendation of the Language Boards

In January 1997, the Finnish and Swedish Language Boards of the Research Institute for the Languages of Finland discussed the use of place names of Finland that occur in texts of different languages. Since equality of the national languages is the central principle in the Finnish Constitution, the Boards gave the following recommendations:

- In Finnish, Finnish place name forms are to be preferred; in Swedish, Swedish name forms are to be preferred; and in Sámi, Sámi name forms are to be preferred. (As to the choice between Finnish and Swedish name forms in Sámi, the Sámi Language Board will provide a statement later.)

- In languages that are closely related to Finnish, name forms in Finnish should be preferred, unless no other established names exist in the languages in question.

- In Scandinavian languages, Swedish name forms should be preferred, unless no other established names exist in the languages in question. Among the Swedish names of the municipalities of Finland there are, in addition to those officially confirmed in 1982, many unofficial names which have been used for a long time. In official contexts, however, only official names should be used.

- In foreign languages, names of monolingual areas should appear in the form they have in the official language of those areas (for instance, fi Iisalmi, sv Mariehamn), unless there are no other established names in the languages in question. For bilingual areas, the names in the majority language should be preferred (for instance, fi Helsinki, Turku, Vaasa; sv Jakobstad, Nykarleby, Pargas, Ekenäs.)

This recommendation is meant for translators and editors, and it concerns such public names as the names of rural and urban municipalities, counties, provinces, other administrative units, streets and roads. Furthermore, this recommendation is only meant for current documentary texts and especially for Finnish translators' needs.

In texts in a foreign language - except Scandinavian languages - place names would in practice be in the form that is presented first in signboards. For instance in Helsinki the language of the majority is Finnish, and accordingly in a translation one would find the street names Mannerheimintie fi and Liisankatu fi, not Mannerheimvägen or Elisabetsgatan. The names of many historical provinces were introduced into other languages while Finland was still part of the Swedish kingdom. Thus they have become established names (exonyms) in those languages - for instance, Karelia, Ostrobothnia and Lapland

in the English language. According to the recommendation, excepting the exonyms, the Finnish forms of the names of Finnish provinces should be used in texts in foreign languages, the only exception being the province of Åland (Ahvenanmaa fi), for which its Swedish name should be used in accordance with the local language. A gazetteer of Swedish place names of Finland and Finnish equivalents and indications of the eventual officiality of the name forms has been compiled by Zilliacus and Ådahl-Sundgren (1984).

The official names of the historical provinces, the new administrative provinces, the counties and the municipalities are listed in the Toponymic Guidelines of Finland. On maps, it is recommended that names be given in both languages, with the name in the local majority language on top.

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